SEQUENCE LISTING

<110> Chisso Corporation
       FUJIMORI KOGYO Co., Ltd.

<120> Thrombin Derivative and Pharmaceutical Composition Containing the Same

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<150> JP 2004-080950
<151> 2004-03-19

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65                  70                  75                  80
ctc atc agt gac cgc tgg gtc ctc acc gcc gcc cac tgc ctc ctg tac       288
Leu Ile Ser Asp Arg Trp Val Leu Thr Ala Ala His Cys Leu Leu Tyr
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ccg ccc tgg gac aag aac ttc acc gag aat gac ctt ctg gtg cgc att       336
Pro Pro Trp Asp Lys Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile
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ggc aag cac tcc cgc aca agg tac gag cga aac att gaa aag ata tcc       384
Gly Lys His Ser Arg Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser
                    115                 120                 125
atg ttg gaa aag atc tac atc cac ccc agg tac aac tgg cgg gag aac       432
Met Leu Glu Lys Ile Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn
                    130                 135                 140
ctg gac cgg gac att gcc ctg atg aag ctg aag aag cct gtt gcc ttc       480
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145                 150                 155                 160
agt gac tac att cac cct gtg tgt ctg ccc gac agg gag acg gca gcc       528
Ser Asp Tyr Ile His Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala
                    165                 170                 175
agc ttg ctc cag gct gga tac aag ggg cgg gtg aca ggc tgg ggc aac       576
Ser Leu Leu Gln Ala Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn
                    180                 185                 190
ctg aag gag acg tgg aca gcc aac gtt ggt aag ggg cag ccc agt gtc       624
Leu Lys Glu Thr Trp Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val
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ctg cag gtg gtg aac ctg ccc att gtg gag cgg ccg gtc tgc aag gac       672
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225                 230                 235                 240
cct gat gaa ggg aaa cga ggg gat gcc tgt gaa ggt gac agt ggg gga       768
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ccc ttt gtc atg aag agc ccc ttt aac aac cgc tgg tat caa atg ggc       816
Pro Phe Val Met Lys Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly
                    260                 265                 270
atc gtc tca tgg ggt gaa ggc tgt gac cgg gat ggg aaa tat ggc ttc       864
Ile Val Ser Trp Gly Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe
                    275                 280                 285
tac aca cat gtg ttc cgc ctg aag aag tgg ata cag aag gtc att gat       912
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        35   40   45

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Pro Pro Trp Asp Lys Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile
                100   105   110

Gly Lys His Ser Arg Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser
                115   120   125

Met Leu Glu Lys Ile Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn
    130   135   140

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Ser Asp Tyr Ile His Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala
                165   170   175

Ser Leu Leu Gln Ala Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn
                180   185   190

Leu Lys Glu Thr Trp Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val
                195   200   205

Leu Gln Val Val Asn Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp
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Ser Thr Arg Ile Arg Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys
225   230   235   240

Pro Asp Glu Gly Lys Arg Gly Asp Ala Cys Glu Gly Asp Ser Gly Gly
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Pro Phe Val Met Lys Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly
                260   265   270

Ile Val Ser Trp Gly Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe
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gcc ctg tgt agc ctt gtg cac agc cag cat gtg ttc ctg gct cct cag   96
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
                20   25   30
caa gca cgg tcg ctg ctc cag cgg gtc cgg cga acc gcc acc agt gag   144
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
            35   40   45
tac cag act ttc ttc aat ccg agg acc ttt ggc tcg gga gag gca gac   192
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp

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                50                  55                  60
tgt ggg ctg cga cct ctg ttc gag aag aag tcg ctg gag gac aaa acc    240
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65                  70                  75                  80
gaa aga gag ctc ctg gaa tcc tac atc gac ggg cgc att gtg gag ggc    288
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
                    85                  90                  95
tcg gat gca gag atc ggc atg tca cct tgg cag gtg atg ctt ttc cgg    336
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
                    100                 105                 110
aag agt ccc cag gag ctg ctg tgt ggg gcc agc ctc atc agt gac cgc    384
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
                    115                 120                 125
tgg gtc ctc acc gcc gcc cac tgc ctc ctg tac ccg ccc tgg gac aag    432
Trp Val Leu Thr Ala Ala His Cys Leu Leu Tyr Pro Pro Trp Asp Lys
            130                 135                 140
aac ttc acc gag aat gac ctt ctg gtg cgc att ggc aag cac tcc cgc    480
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
145                 150                 155                 160
aca agg tac gag cga aac att gaa aag ata tcc atg ttg gaa aag atc    528
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
                    165                 170                 175
tac atc cac ccc agg tac aac tgg cgg gag aac ctg gac cgg gac att    576
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
                180                 185                 190
gcc ctg atg aag ctg aag aag cct gtt gcc ttc agt gac tac att cac    624
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
                195                 200                 205
cct gtg tgt ctg ccc gac agg gag acg gca gcc agc ttg ctc cag gct    672
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
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Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225                 230                 235                 240
aca gcc aac gtt ggt aag ggg cag ccc agt gtc ctg cag gtg gtg aac    768
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
                    245                 250                 255
ctg ccc att gtg gag cgg ccg gtc tgc aag gac tcc acc cgg atc cgc    816
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
                260                 265                 270
atc act gac aac atg ttc tgt gct ggt tac aag cct gat gaa ggg aaa    864
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
            275                 280                 285
cga ggg gat gcc tgt gaa ggt gac agt ggg gga ccc ttt gtc atg aag    912
Arg Gly Asp Ala Cys Glu Gly Asp Ser Gly Gly Pro Phe Val Met Lys
        290                 295                 300
agc ccc ttt aac aac cgc tgg tat caa atg ggc atc gtc tca tgg ggt    960
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305                 310                 315                 320
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            325           330                   335

cgc ctg aag aag tgg ata cag aag gtc att gat cag ttt gga gag tag      1056
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Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
            35              40                  45
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
        50              55              60
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65              70              75                  80
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
            85              90                  95
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
            100             105                 110
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
            115             120                 125
Trp Val Leu Thr Ala Ala His Cys Leu Leu Tyr Pro Pro Trp Asp Lys
            130             135             140
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
145             150             155                 160
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
            165             170                 175
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
            180             185             190
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
            195             200             205
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
            210             215             220
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225             230             235                 240
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
            245             250                 255
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
            260             265             270
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
            275             280             285
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Arg Gly Asp Ala Cys Glu Gly Asp Ser Gly Gly Pro Phe Val Met Lys
    290                 295                 300
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305                 310                 315                 320
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
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Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
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1               5                   10                  15
gcc ctg tgt agc ctt gtg cac agc cag cat gtg ttc ctg gct cct cag      96
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
                20                  25                  30
caa gca cgg tcg ctg ctc cag cgg gtc cgg cga acc gcc acc agt gag     144
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
            35                  40                  45
tac cag act ttc ttc aat ccg agg acc ttt ggc tcg gga gag gca gac     192
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
        50                  55                  60
tgt ggg ctg cga cct ctg ttc gag aag aag tcg ctg gag gac aaa acc     240
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65                  70                  75                  80
gaa aga gag ctc ctg gaa tcc tac atc gac ggg cgc att gtg gag ggc     288
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
                85                  90                  95
tcg gat gca gag atc ggc atg tca cct tgg cag gtg atg ctt ttc cgg     336
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
                100                 105                 110
aag agt ccc cag gag ctg ctg tgt ggg gcc agc ctc atc agt gac cgc     384
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
            115                 120                 125
tgg gtc ctc acc gcc gcc cac tgc ctc ctg tac ccg ccc tgg gac aag     432
Trp Val Leu Thr Ala Ala His Cys Leu Leu Tyr Pro Pro Trp Asp Lys
        130                 135                 140
aac ttc acc gag aat gac ctt ctg gtg cgc att ggc aag cac tcc cgc     480
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
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                    145                      150                          155                       160
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                    Thr  Arg  Tyr  Glu  Arg  Asn  Ile  Glu  Lys  Ile  Ser  Met  Leu  Glu  Lys  Ile
                                        165                      170                      175
                    tac  atc  cac  ccc  agg  tac  aac  tgg  cgg  gag  aac  ctg  gac  cgg  gac  att        576
                    Tyr  Ile  His  Pro  Arg  Tyr  Asn  Trp  Arg  Glu  Asn  Leu  Asp  Arg  Asp  Ile
                                        180                      185                      190
                    gcc  ctg  atg  aag  ctg  aag  aag  cct  gtt  gcc  ttc  agt  gac  tac  att  cac        624
                    Ala  Leu  Met  Lys  Leu  Lys  Lys  Pro  Val  Ala  Phe  Ser  Asp  Tyr  Ile  His
                                    195                      200                      205
                    cct  gtg  tgt  ctg  ccc  gac  agg  gag  acg  gca  gcc  agc  ttg  ctc  cag  gct        672
                    Pro  Val  Cys  Leu  Pro  Asp  Arg  Glu  Thr  Ala  Ala  Ser  Leu  Leu  Gln  Ala
                                210                      215                      220
                    gga  tac  aag  ggg  cgg  gtg  aca  ggc  tgg  ggc  aac  ctg  aag  gag  acg  tgg        720
                    Gly  Tyr  Lys  Gly  Arg  Val  Thr  Gly  Trp  Gly  Asn  Leu  Lys  Glu  Thr  Trp
                    225                      230                      235                          240
                    aca  gcc  aac  gtt  ggt  aag  ggg  cag  ccc  agt  gtc  ctg  cag  gtg  gtg  aac        768
                    Thr  Ala  Asn  Val  Gly  Lys  Gly  Gln  Pro  Ser  Val  Leu  Gln  Val  Val  Asn
                                        245                      250                      255
                    ctg  ccc  att  gtg  gag  cgg  ccg  gtc  tgc  aag  gac  tcc  acc  cgg  atc  cgc        816
                    Leu  Pro  Ile  Val  Glu  Arg  Pro  Val  Cys  Lys  Asp  Ser  Thr  Arg  Ile  Arg
                                        260                      265                      270
                    atc  act  gac  aac  atg  ttc  tgt  gct  ggt  tac  aag  cct  gat  gaa  ggg  aaa        864
                    Ile  Thr  Asp  Asn  Met  Phe  Cys  Ala  Gly  Tyr  Lys  Pro  Asp  Glu  Gly  Lys
                                    275                      280                      285
                    cga  ggg  gat  gcc  tgt  gaa  gct  gac  ggt  ggg  gga  ccc  ttt  gtc  atg  aag        912
                    Arg  Gly  Asp  Ala  Cys  Glu  Ala  Asp  Gly  Gly  Gly  Pro  Phe  Val  Met  Lys
                                290                      295                      300
                    agc  ccc  ttt  aac  aac  cgc  tgg  tat  caa  atg  ggc  atc  gtc  tca  tgg  ggt        960
                    Ser  Pro  Phe  Asn  Asn  Arg  Trp  Tyr  Gln  Met  Gly  Ile  Val  Ser  Trp  Gly
                    305                      310                      315                          320
                    gaa  ggc  tgt  gac  cgg  gat  ggg  aaa  tat  ggc  ttc  tac  aca  cat  gtg  ttc       1008
                    Glu  Gly  Cys  Asp  Arg  Asp  Gly  Lys  Tyr  Gly  Phe  Tyr  Thr  His  Val  Phe
                                        325                      330                      335
                    cgc  ctg  aag  aag  tgg  ata  cag  aag  gtc  att  gat  cag  ttt  gga  gag  tag       1056
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                                    340                      345                      350
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Ala  Leu  Cys  Ser  Leu  Val  His  Ser  Gln  His  Val  Phe  Leu  Ala  Pro  Gln
                    20                      25                      30
Gln  Ala  Arg  Ser  Leu  Leu  Gln  Arg  Val  Arg  Arg  Thr  Ala  Thr  Ser  Glu
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 65                    70                    75                    80
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
                 85                    90                    95
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
                100                   105                   110
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
                115                   120                   125
Trp Val Leu Thr Ala Ala His Cys Leu Leu Tyr Pro Pro Trp Asp Lys
         130                   135                   140
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
145                   150                   155                   160
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
                165                   170                   175
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
                180                   185                   190
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
                195                   200                   205
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
         210                   215                   220
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225                   230                   235                   240
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
                245                   250                   255
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
                260                   265                   270
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
                275                   280                   285
Arg Gly Asp Ala Cys Glu Ala Asp Gly Gly Gly Pro Phe Val Met Lys
         290                   295                   300
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305                   310                   315                   320
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1               5                   10                  15

gcc ctg tgt agc ctt gtg cac agc cag cat gtg ttc ctg gct cct cag        96
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
                20                  25                  30

caa gca cgg tcg ctg ctc cag cgg gtc cgg cga acc gcc acc agt gag       144
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
            35                  40                  45

tac cag act ttc ttc aat ccg agg acc ttt ggc tcg gga gag gca gac       192
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
        50                  55                  60

tgt ggg ctg cga cct ctg ttc gag aag aag tcg ctg gag gac aaa acc       240
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65                  70                  75                  80

gaa aga gag ctc ctg gaa tcc tac atc gac ggg cgc att gtg gag ggc       288
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
                85                  90                  95

tcg gat gca gag atc ggc atg tca cct tgg cag gtg atg ctt ttc cgg       336
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
                100                 105                 110

aag agt ccc cag gag ctg ctg tgt ggg gcc agc ctc atc agt gac cgc       384
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
            115                 120                 125

tgg gtc ctc acc gcc gcc cac tgc ctc ctg tac ccg ccc tgg gac aag       432
Trp Val Leu Thr Ala Ala His Cys Leu Leu Tyr Pro Pro Trp Asp Lys
        130                 135                 140

aac ttc acc gag aat gac ctt ctg gtg cgc att ggc aag cac tcc cgc       480
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
145                 150                 155                 160

aca agg tac gag cga aac att gaa aag ata tcc atg ttg gaa aag atc       528
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
                165                 170                 175

tac atc cac ccc agg tac aac tgg cgg gag aac ctg gac cgg gac att       576
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
            180                 185                 190

gcc ctg atg aag ctg aag aag cct gtt gcc ttc agt gac tac att cac       624
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
            195                 200                 205

cct gtg tgt ctg ccc gac agg gag acg gca gcc agc ttg ctc cag gct       672
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
        210                 215                 220

gga tac aag ggg cgg gtg aca ggc tgg ggc aac ctg aag gag acg tgg       720
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225                 230                 235                 240

aca gcc aac gtt ggt aag ggg cag ccc agt gtc ctg cag gtg gtg aac       768
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
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                   245                250                 255
ctg ccc att gtg gag cgg ccg gtc tgc aag gac tcc acc cgg atc cgc        816
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
               260                265                270
atc act gac aac atg ttc tgt gct ggt tac aag cct gat gaa ggg aaa        864
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
               275                280                285
cga ggg gat gcc tgt gaa ggt gac gct ggg gga ccc ttt gtc atg aag        912
Arg Gly Asp Ala Cys Glu Gly Asp Ala Gly Gly Pro Phe Val Met Lys
               290                295                300
agc ccc ttt aac aac cgc tgg tat caa atg ggc atc gtc tca tgg ggt        960
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305                310                315                320
gaa ggc tgt gac cgg gat ggg aaa tat ggc ttc tac aca cat gtg ttc       1008
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
               325                330                335
cgc ctg aag aag tgg ata cag aag gtc att gat cag ttt gga gag tag       1056
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
               340                345                350
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<210> 10
<211> 351
<212> PRT
<213> Homo sapiens

<400> 10

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Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1                 5                  10                 15
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
               20                 25                 30
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
         35                 40                 45
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
     50                 55                 60
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65                 70                 75                 80
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
               85                 90                 95
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
               100                105                110
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
         115                120                125
Trp Val Leu Thr Ala Ala His Cys Leu Leu Tyr Pro Pro Trp Asp Lys
     130                135                140
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
145                150                155                160
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
               165                170                175
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
```

```
              180                 185                 190
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
         195                 200                 205
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
      210                 215                 220
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225                 230                 235                 240
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
               245                 250                 255
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
            260                 265                 270
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
         275                 280                 285
Arg Gly Asp Ala Cys Glu Gly Asp Ala Gly Gly Pro Phe Val Met Lys
      290                 295                 300
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305                 310                 315                 320
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
               325                 330                 335
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
            340                 345                 350
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<210>   11
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<212>   DNA
<213>   Homo sapiens

<220>
<221>   CDS
<222>   (1)..(1056)
<223>

<400>   11
atg gcg cac gtc cga ggc ttg cag ctg cct ggc tgc ctg gcc ctg gct      48
Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1               5                   10                  15

gcc ctg tgt agc ctt gtg cac agc cag cat gtg ttc ctg gct cct cag      96
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
            20                  25                  30

caa gca cgg tcg ctg ctc cag cgg gtc cgg cga acc gcc acc agt gag     144
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
         35                  40                  45

tac cag act ttc ttc aat ccg agg acc ttt ggc tcg gga gag gca gac     192
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
      50                  55                  60

tgt ggg ctg cga cct ctg ttc gag aag aag tcg ctg gag gac aaa acc     240
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65                  70                  75                  80

gaa aga gag ctc ctg gaa tcc tac atc gac ggg cgc att gtg gag ggc     288
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Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
     85   90   95

tcg gat gca gag atc ggc atg tca cct tgg cag gtg atg ctt ttc cgg 336
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
     100   105   110

aag agt ccc cag gag ctg ctg tgt ggg gcc agc ctc atc agt gac cgc 384
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
     115   120   125

tgg gtc ctc acc gcc gcc cac tgc ctc ctg tac ccg ccc tgg gac aag 432
Trp Val Leu Thr Ala Ala His Cys Leu Leu Tyr Pro Pro Trp Asp Lys
   130   135   140

aac ttc acc gag aat gac ctt ctg gtg cgc att ggc aag cac tcc cgc 480
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
145   150   155   160

aca agg tac gag cga aac att gaa aag ata tcc atg ttg gaa aag atc 528
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
     165   170   175

tac atc cac ccc agg tac aac tgg cgg gag aac ctg gac cgg gac att 576
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
     180   185   190

gcc ctg atg aag ctg aag aag cct gtt gcc ttc agt gac tac att cac 624
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
     195   200   205

cct gtg tgt ctg ccc gac agg gag acg gca gcc agc ttg ctc cag gct 672
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
   210   215   220

gga tac aag ggg cgg gtg aca ggc tgg ggc aac ctg aag gag acg tgg 720
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225   230   235   240

aca gcc aac gtt ggt aag ggg cag ccc agt gtc ctg cag gtg gtg aac 768
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
     245   250   255

ctg ccc att gtg gag cgg ccg gtc tgc aag gac tcc acc cgg atc cgc 816
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
     260   265   270

atc act gac aac atg ttc tgt gct ggt tac aag cct gat gaa ggg aaa 864
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
     275   280   285

cga ggg gat gcc tgt gaa ggt gac act ggg gga ccc ttt gtc atg aag 912
Arg Gly Asp Ala Cys Glu Gly Asp Thr Gly Gly Pro Phe Val Met Lys
   290   295   300

agc ccc ttt aac aac cgc tgg tat caa atg ggc atc gtc tca tgg ggt 960
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305   310   315   320

gaa ggc tgt gac cgg gat ggg aaa tat ggc ttc tac aca cat gtg ttc 1008
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
     325   330   335

cgc ctg aag aag tgg ata cag aag gtc att gat cag ttt gga gag tag 1056
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu

                340   345   350

<210> 12
<211> 351
<212> PRT
<213> Homo sapiens

<400> 12
Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1   5   10   15
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
            20   25   30
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
        35   40   45
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
    50   55   60
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65   70   75   80
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
                85   90   95
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
            100   105   110
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
            115   120   125
Trp Val Leu Thr Ala Ala His Cys Leu Leu Tyr Pro Pro Trp Asp Lys
    130   135   140
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
145   150   155   160
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
                165   170   175
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
                180   185   190
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
            195   200   205
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
    210   215   220
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225   230   235   240
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
                245   250   255
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
            260   265   270
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
            275   280   285
Arg Gly Asp Ala Cys Glu Gly Asp Thr Gly Gly Pro Phe Val Met Lys
        290   295   300
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305   310   315   320
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe

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                325                    330                    335
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
            340                    345                    350
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<210> 13
<211> 1056
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)..(1056)
<223>

<400> 13

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atg gcg cac gtc cga ggc ttg cag ctg cct ggc tgc ctg gcc ctg gct        48
Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1               5                   10                  15

gcc ctg tgt agc ctt gtg cac agc cag cat gtg ttc ctg gct cct cag        96
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
                20                  25                  30

caa gca cgg tcg ctg ctc cag cgg gtc cgg cga acc gcc acc agt gag       144
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
        35                  40                  45

tac cag act ttc ttc aat ccg agg acc ttt ggc tcg gga gag gca gac       192
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
    50                  55                  60

tgt ggg ctg cga cct ctg ttc gag aag aag tcg ctg gag gac aaa acc       240
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65                  70                  75                  80

gaa aga gag ctc ctg gaa tcc tac atc gac ggg cgc att gtg gag ggc       288
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
                85                  90                  95

tcg gat gca gag atc ggc atg tca cct tgg cag gtg atg ctt ttc cgg       336
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
                100                 105                 110

aag agt ccc cag gag ctg ctg tgt ggg gcc agc ctc atc agt gac cgc       384
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
            115                 120                 125

tgg gtc ctc acc gcc gcc cac tgc ctc ctg tac ccg ccc tgg gac aag       432
Trp Val Leu Thr Ala Ala His Cys Leu Leu Tyr Pro Pro Trp Asp Lys
    130                 135                 140

aac ttc acc gag aat gac ctt ctg gtg cgc att ggc aag cac tcc cgc       480
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
145                 150                 155                 160

aca agg tac gag cga aac att gaa aag ata tcc atg ttg gaa aag atc       528
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
                165                 170                 175

tac atc cac ccc agg tac aac tgg cgg gag aac ctg gac cgg aac att       576
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Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asn Ile
         180                 185                 190
gcc ctg atg aag ctg aag aag cct gtt gcc ttc agt gac tac att cac     624
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
         195                 200                 205
cct gtg tgt ctg ccc gac agg gag acg gca gcc agc ttg ctc cag gct     672
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
         210                 215                 220
gga tac aag ggg cgg gtg aca ggc tgg ggc aac ctg aag gag acg tgg     720
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225                 230                 235                 240
aca gcc aac gtt ggt aag ggg cag ccc agt gtc ctg cag gtg gtg aac     768
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
                   245                 250                 255
ctg ccc att gtg gag cgg ccg gtc tgc aag gac tcc acc cgg atc cgc     816
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
                   260                 265                 270
atc act gac aac atg ttc tgt gct ggt tac aag cct gat gaa ggg aaa     864
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
         275                 280                 285
cga ggg gat gcc tgt gaa gct gac gct ggg gga ccc ttt gtc atg aag     912
Arg Gly Asp Ala Cys Glu Ala Asp Ala Gly Gly Pro Phe Val Met Lys
         290                 295                 300
agc ccc ttt aac aac cgc tgg tat caa atg ggc atc gtc tca tgg ggt     960
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305                 310                 315                 320
gaa ggc tgt gac cgg gat ggg aaa tat ggc ttc tac aca cat gtg ttc    1008
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
                   325                 330                 335
cgc ctg aag aag tgg ata cag aag gtc att gat cag ttt gga gag tag    1056
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
         340                 345                 350
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<210> 14
<211> 351
<212> PRT
<213> Homo sapiens

<400> 14

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Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1               5                   10                  15
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
                   20                  25                  30
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
         35                  40                  45
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
         50                  55                  60
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65                  70                  75                  80
```

Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
               85   90   95

Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
          100   105   110

Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
        115   120   125

Trp Val Leu Thr Ala Ala His Cys Leu Leu Tyr Pro Pro Trp Asp Lys
     130   135   140

Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
145   150   155   160

Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
          165   170   175

Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asn Ile
          180   185   190

Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
         195   200   205

Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
     210   215   220

Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225   230   235   240

Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
          245   250   255

Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
          260   .265   270

Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
          275   280   285

Arg Gly Asp Ala Cys Glu Ala Asp Ala Gly Gly Pro Phe Val Met Lys
     290   295   300

Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305   310   315   320

Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
          325   330   335

Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
          340   345   350

<210> 15
<211> 1056
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)..(1056)
<223>

<400> 15
atg gcg cac gtc cga ggc ttg cag ctg cct ggc tgc ctg gcc ctg gct   48
Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1   5   10   15

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gcc ctg tgt agc ctt gtg cac agc cag cat gtg ttc ctg gct cct cag          96
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
            20                  25                  30

caa gca cgg tcg ctg ctc cag cgg gtc cgg cga acc gcc acc agt gag         144
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
            35                  40                  45

tac cag act ttc ttc aat ccg agg acc ttt ggc tcg gga gag gca gac         192
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
            50                  55                  60

tgt ggg ctg cga cct ctg ttc gag aag aag tcg ctg gag gac aaa acc         240
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65                  70                  75                  80

gaa aga gag ctc ctg gaa tcc tac atc gac ggg cgc att gtg gag ggc         288
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
                    85                  90                  95

tcg gat gca gag atc ggc atg tca cct tgg cag gtg atg ctt ttc cgg         336
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
                100                 105                 110

aag agt ccc cag gag ctg ctg tgt ggg gcc agc ctc atc agt gac cgc         384
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
            115                 120                 125

tgg gtc ctc acc gcc gcc cac tgc ctc ctg tac ccg ccc tgg gac aag         432
Trp Val Leu Thr Ala Ala His Cys Leu Leu Tyr Pro Pro Trp Asp Lys
            130                 135                 140

aac ttc acc gag aat gac ctt ctg gtg cgc att ggc aag cac tcc cgc         480
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
145                 150                 155                 160

aca agg tac gag cga aac att gaa aag ata tcc atg ttg gaa aag atc         528
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
                    165                 170                 175

tac atc cac ccc agg tac aac tgg cgg gag aac ctg gac cgg gac att         576
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
                180                 185                 190

gcc ctg atg aag ctg aag aag cct gtt gcc ttc agt gac tac att cac         624
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
            195                 200                 205

cct gtg tgt ctg ccc gac agg gag acg gca gcc agc ttg ctc cag gct         672
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
            210                 215                 220

gga tac aag ggg cgg gtg aca ggc tgg ggc aac ctg aag gag acg tgg         720
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225                 230                 235                 240

aca gcc aac gtt ggt aag ggg cag ccc agt gtc ctg cag gtg gtg aac         768
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
                    245                 250                 255

ctg ccc att gtg gag cgg ccg gtc tgc aag gac tcc acc cgg atc cgc         816
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
                260                 265                 270

atc act gac aac atg ttc tgt gct ggt tac aag cct gat gaa ggg aaa         864
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
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```
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
        275             280             285
cga ggg gat gcc tgt gaa ggt gac gtt ggg gga ccc ttt gtc atg aag          912
Arg Gly Asp Ala Cys Glu Gly Asp Val Gly Gly Pro Phe Val Met Lys
        290             295             300
agc ccc ttt aac aac cgc tgg tat caa atg ggc atc gtc tca tgg ggt          960
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305             310             315             320
gaa ggc tgt gac cgg gat ggg aaa tat ggc ttc tac aca cat gtg ttc          1008
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
                325             330             335
cgc ctg aag aag tgg ata cag aag gtc att gat cag ttt gga gag tag          1056
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
        340             345             350
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<210>  16
<211>  351
<212>  PRT
<213>  Homo sapiens


<400>  16
Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1               5               10              15
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
        20              25              30
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
        35              40              45
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
        50              55              60
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65              70              75              80
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
                85              90              95
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
        100             105             110
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
        115             120             125
Trp Val Leu Thr Ala Ala His Cys Leu Leu Tyr Pro Pro Trp Asp Lys
        130             135             140
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
145             150             155             160
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
                165             170             175
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
                180             185             190
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
        195             200             205
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
        210             215             220
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Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225   230   235   240

Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
                245   250   255

Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
                260   265   270

Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
            275   280   285

Arg Gly Asp Ala Cys Glu Gly Asp Ala Gly Gly Pro Phe Val Met Lys
        290   295   300

Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305   310   315   320

Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
                325   330   335

Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
                340   345   350

<210>   17
<211>   1056
<212>   DNA
<213>   Homo sapiens

<220>
<221>   CDS
<222>   (1)..(1056)
<223>

<400>   17
atg gcg cac gtc cga ggc ttg cag ctg cct ggc tgc ctg gcc ctg gct   48
Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1   5   10   15

gcc ctg tgt agc ctt gtg cac agc cag cat gtg ttc ctg gct cct cag   96
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
                20   25   30

caa gca cgg tcg ctg ctc cag cgg gtc cgg cga acc gcc acc agt gag   144
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
        35   40   45

tac cag act ttc ttc aat ccg agg acc ttt ggc tcg gga gag gca gac   192
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
    50   55   60

tgt ggg ctg cga cct ctg ttc gag aag aag tcg ctg gag gac aaa acc   240
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65   70   75   80

gaa aga gag ctc ctg gaa tcc tac atc gac ggg cgc att gtg gag ggc   288
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
                85   90   95

tcg gat gca gag atc ggc atg tca cct tgg cag gtg atg ctt ttc cgg   336
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
                100   105   110

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aag agt ccc cag gag ctg ctg tgt ggg gcc agc ctc atc agt gac cgc        384
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
        115             120             125
tgg gtc ctc acc gcc gcc cac tgc ctc ctg tac ccg ccc tgg gac aag        432
Trp Val Leu Thr Ala Ala His Cys Leu Leu Tyr Pro Pro Trp Asp Lys
        130             135             140
aac ttc acc gag aat gac ctt ctg gtg cgc att ggc aag cac tcc cgc        480
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
145             150             155             160
aca agg tac gag cga aac att gaa aag ata tcc atg ttg gaa aag atc        528
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
                165             170             175
tac atc cac ccc agg tac aac tgg cgg gag aac ctg gac cgg gac att        576
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
                180             185             190
gcc ctg atg aag ctg aag aag cct gtt gcc ttc agt gac tac att cac        624
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
                195             200             205
cct gtg tgt ctg ccc gac agg gag acg gca gcc agc ttg ctc cag gct        672
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
        210             215             220
gga tac aag ggg cgg gtg aca ggc tgg ggc aac ctg aag gag acg tgg        720
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225             230             235             240
aca gcc aac gtt ggt aag ggg cag ccc agt gtc ctg cag gtg gtg aac        768
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
                245             250             255
ctg ccc att gtg gag cgg ccg gtc tgc aag gac tcc acc cgg atc cgc        816
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
                260             265             270
atc act gac aac atg ttc tgt gct ggt tac aag cct gat gaa ggg aaa        864
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
        275             280             285
cga ggg gat gcc tgt gaa ggt gac gat ggg gga ccc ttt gtc atg aag        912
Arg Gly Asp Ala Cys Glu Gly Asp Asp Gly Gly Pro Phe Val Met Lys
        290             295             300
agc ccc ttt aac aac cgc tgg tat caa atg ggc atc gtc tca tgg ggt        960
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305             310             315             320
gaa ggc tgt gac cgg gat ggg aaa tat ggc ttc tac aca cat gtg ttc       1008
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
                325             330             335
cgc ctg aag aag tgg ata cag aag gtc att gat cag ttt gga gag tag       1056
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
        340             345             350


<210>   18
<211>   351
<212>   PRT
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<210> Homo sapiens

<400> 18
Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1   5   10   15
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
            20   25   30
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
        35   40   45
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
    50   55   60
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65   70   75   80
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
                85   90   95
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
                100   105   110
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
            115   120   125
Trp Val Leu Thr Ala Ala His Cys Leu Leu Tyr Pro Pro Trp Asp Lys
        130   135   140
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
145   150   155   160
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
                165   170   175
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
                180   185   190
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
            195   200   205
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
        210   215   220
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225   230   235   240
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
                245   250   255
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
            260   265   270
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
        275   280   285
Arg Gly Asp Ala Cys Glu Gly Asp Asp Gly Gly Pro Phe Val Met Lys
    290   295   300
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305   310   315   320
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
                325   330   335
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
            340   345   350

<210> 19

<211>   1056
<212>   DNA
<213>   Homo sapiens

<220>
<221>   CDS
<222>   (1)..(1056)
<223>

<400>   19

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atg gcg cac gtc cga ggc ttg cag ctg cct ggc tgc ctg gcc ctg gct      48
Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1               5                   10                  15

gcc ctg tgt agc ctt gtg cac agc cag cat gtg ttc ctg gct cct cag      96
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
                20                  25                  30

caa gca cgg tcg ctg ctc cag cgg gtc cgg cga acc gcc acc agt gag     144
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
            35                  40                  45

tac cag act ttc ttc aat ccg agg acc ttt ggc tcg gga gag gca gac     192
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
        50                  55                  60

tgt ggg ctg cga cct ctg ttc gag aag aag tcg ctg gag gac aaa acc     240
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65                  70                  75                  80

gaa aga gag ctc ctg gaa tcc tac atc gac ggg cgc att gtg gag ggc     288
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
                85                  90                  95

tcg gat gca gag atc ggc atg tca cct tgg cag gtg atg ctt ttc cgg     336
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
                100                 105                 110

aag agt ccc cag gag ctg ctg tgt ggg gcc agc ctc atc agt gac cgc     384
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
            115                 120                 125

tgg gtc ctc acc gcc gcc cac tgc ctc ctg tac ccg ccc tgg gac aag     432
Trp Val Leu Thr Ala Ala His Cys Leu Leu Tyr Pro Pro Trp Asp Lys
        130                 135                 140

aac ttc acc gag aat gac ctt ctg gtg cgc att ggc aag cac tcc cgc     480
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
145                 150                 155                 160

aca agg tac gag cga aac att gaa aag ata tcc atg ttg gaa aag atc     528
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
                165                 170                 175

tac atc cac ccc agg tac aac tgg cgg gag aac ctg gac cgg gac att     576
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
                180                 185                 190

gcc ctg atg aag ctg aag aag cct gtt gcc ttc agt gac tac att cac     624
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
            195                 200                 205
```

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cct gtg tgt ctg ccc gac agg gag acg gca gcc agc ttg ctc cag gct        672
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
    210             215             220

gga tac aag ggg cgg gtg aca ggc tgg ggc aac ctg aag gag acg tgg        720
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225             230             235             240

aca gcc aac gtt ggt aag ggg cag ccc agt gtc ctg cag gtg gtg aac        768
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
                245             250             255

ctg ccc att gtg gag cgg ccg gtc tgc aag gac tcc acc cgg atc cgc        816
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
                260             265             270

atc act gac aac atg ttc tgt gct ggt tac aag cct gat gaa ggg aaa        864
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
                275             280             285

cga ggg gat gcc tgt gaa ggt gac aat ggg gga ccc ttt gtc atg aag        912
Arg Gly Asp Ala Cys Glu Gly Asp Asn Gly Gly Pro Phe Val Met Lys
    290             295             300

agc ccc ttt aac aac cgc tgg tat caa atg ggc atc gtc tca tgg ggt        960
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305             310             315             320

gaa ggc tgt gac cgg gat· ggg aaa tat ggc ttc tac aca cat gtg ttc       1008
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
                325             330             335

cgc ctg aag aag tgg ata cag aag gtc att gat cag ttt gga gag tag       1056
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
                340             345             350
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<210>   20
<211>   351
<212>   PRT
<213>   Homo sapiens

<400>   20
Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1               5               10              15
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
                20              25              30
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
        35              40              45
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
    50              55              60
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65              70              75              80
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
            85              90              95
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
            100             105             110
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
```

```
              115                    120                    125
Trp Val Leu Thr Ala Ala His Cys Leu Leu Tyr Pro Pro Trp Asp Lys
         130                    135                    140
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
145                    150                    155                    160
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
                  165                    170                    175
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
                  180                    185                    190
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
                  195                    200                    205
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
         210                    215                    220
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225                    230                    235                    240
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
                  245                    250                    255
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
                  260                    265                    270
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
                  275                    280                    285
Arg Gly Asp Ala Cys Glu Gly Asp Asn Gly Gly Pro Phe Val Met Lys
         290                    295                    300
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305                    310                    315                    320
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
                  325                    330                    335
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
                  340                    345                    350
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<210> 21
<211> 1056
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)..(1056)
<223>

<400> 21
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atg gcg cac gtc cga ggc ttg cag ctg cct ggc tgc ctg gcc ctg gct      48
Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1               5                   10                  15
gcc ctg tgt agc ctt gtg cac agc cag cat gtg ttc ctg gct cct cag      96
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
                20                  25                  30
caa gca cgg tcg ctg ctc cag cgg gtc cgg cga acc gcc acc agt gag     144
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
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```
                35                    40                    45
tac cag act ttc ttc aat ccg agg acc ttt ggc tcg gga gag gca gac        192
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
        50                    55                    60
tgt ggg ctg cga cct ctg ttc gag aag aag tcg ctg gag gac aaa acc        240
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65                    70                    75                    80
gaa aga gag ctc ctg gaa tcc tac atc gac ggg cgc att gtg gag ggc        288
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
                85                    90                    95
tcg gat gca gag atc ggc atg tca cct tgg cag gtg atg ctt ttc cgg        336
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
                100                   105                   110
aag agt ccc cag gag ctg ctg tgt ggg gcc agc ctc atc agt gac cgc        384
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
                115                   120                   125
tgg gtc ctc acc gcc gcc cac tgc ctc ctg tac ccg ccc tgg gac aag        432
Trp Val Leu Thr Ala Ala His Cys Leu Leu Tyr Pro Pro Trp Asp Lys
        130                   135                   140
aac ttc acc gag aat gac ctt ctg gtg cgc att ggc aag cac tcc cgc        480
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
145                   150                   155                   160
aca agg tac gag cga aac att gaa aag ata tcc atg ttg gaa aag atc        528
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
                165                   170                   175
tac atc cac ccc agg tac aac tgg cgg gag aac ctg gac cgg aac att        576
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asn Ile
                180                   185                   190
gcc ctg atg aag ctg aag aag cct gtt gcc ttc agt gac tac att cac        624
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
        195                   200                   205
cct gtg tgt ctg ccc gac agg gag acg gca gcc agc ttg ctc cag gct        672
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
        210                   215                   220
gga tac aag ggg cgg gtg aca ggc tgg ggc aac ctg aag gag acg tgg        720
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225                   230                   235                   240
aca gcc aac gtt ggt aag ggg cag ccc agt gtc ctg cag gtg gtg aac        768
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
                245                   250                   255
ctg ccc att gtg gag cgg ccg gtc tgc aag gac tcc acc cgg atc cgc        816
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
                260                   265                   270
atc act gac aac atg ttc tgt gct ggt tac aag cct gat gaa ggg aaa        864
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
                275                   280                   285
cga ggg gat gcc tgt gaa ggt gac gct ggg gga ccc ttt gtc atg aag        912
Arg Gly Asp Ala Cys Glu Gly Asp Ala Gly Gly Pro Phe Val Met Lys
        290                   295                   300
```

```
agc ccc ttt aac aac cgc tgg tat caa atg ggc atc gtc tca tgg ggt       960
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305                 310                 315                 320

gaa ggc tgt gac cgg gat ggg aaa tat ggc ttc tac aca cat gtg ttc      1008
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
                325                 330                 335

cgc ctg aag aag tgg ata cag aag gtc att gat cag ttt gga gag tag      1056
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
                340                 345                 350
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<210> 22
<211> 351
<212> PRT
<213> Homo sapiens

<400> 22

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Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1               5                   10                  15
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
                20                  25                  30
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
            35                  40                  45
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
        50                  55                  60
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65              70                  75                  80
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
                85                  90                  95
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
                100                 105                 110
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
            115                 120                 125
Trp Val Leu Thr Ala Ala His Cys Leu Leu Tyr Pro Pro Trp Asp Lys
        130                 135                 140
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
145                 150                 155                 160
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
                165                 170                 175
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asn Ile
                180                 185                 190
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
            195                 200                 205
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
        210                 215                 220
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225                 230                 235                 240
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
                245                 250                 255
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
```

```
              260                 265                 270
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
              275                 280                 285
Arg Gly Asp Ala Cys Glu Gly Asp Ala Gly Gly Pro Phe Val Met Lys
          290                 295                 300
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305                 310                 315                 320
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
                  325                 330                 335
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
              340                 345                 350
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<210> 23
<211> 1056
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)..(1056)
<223>

<400> 23

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atg gcg cac gtc cga ggc ttg cag ctg cct ggc tgc ctg gcc ctg gct      48
Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1               5                   10                  15

gcc ctg tgt agc ctt gtg cac agc cag cat gtg ttc ctg gct cct cag      96
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
                20                  25                  30

caa gca cgg tcg ctg ctc cag cgg gtc cgg cga acc gcc acc agt gag     144
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
        35                  40                  45

tac cag act ttc ttc aat ccg agg acc ttt ggc tcg gga gag gca gac     192
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
    50                  55                  60

tgt ggg ctg cga cct ctg ttc gag aag aag tcg ctg gag gac aaa acc     240
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65                  70                  75                  80

gaa aga gag ctc ctg gaa tcc tac atc gac ggg cgc att gtg gag ggc     288
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
                85                  90                  95

tcg gat gca gag atc ggc atg tca cct tgg cag gtg atg ctt ttc cgg     336
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
                100                 105                 110

aag agt ccc cag gag ctg ctg tgt ggg gcc agc ctc atc agt gac cgc     384
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
            115                 120                 125

tgg gtc ctc acc gcc gcc cac tgc ctc ctg tac ccg ccc tgg gac aag     432
Trp Val Leu Thr Ala Ala His Cys Leu Leu Tyr Pro Pro Trp Asp Lys
```

```
                  130                    135                      140
aac ttc acc gag aat gac ctt ctg gtg cgc att ggc aag cac tcc cgc    480
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
145                    150                    155                    160
aca agg tac gag cga aac att gaa aag ata tcc atg ttg gaa aag atc    528
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
                       165                    170                    175
tac atc cac ccc agg tac aac tgg cgg gag aac ctg gac cgg gac att    576
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
                  180                    185                    190
gcc ctg atg aag ctg aag aag cct gtt gcc ttc agt gac tac att cac    624
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
                  195                    200                    205
cct gtg tgt ctg ccc gac agg gag acg gca gcc agc ttg ctc cag gct    672
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
                  210                    215                    220
gga tac aag ggg cgg gtg aca ggc tgg ggc aac ctg aag gag acg tgg    720
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225                    230                    235                    240
aca gcc aac gtt ggt aag ggg cag ccc agt gtc ctg cag gtg gtg aac    768
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
                       245                    250                    255
ctg ccc att gtg gag cgg ccg gtc tgc aag gac tcc acc cgg atc cgc    816
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
                  260                    265                    270
atc act gac aac atg ttc tgt gct ggt tac aag cct gat gaa ggg aaa    864
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
                  275                    280                    285
cga ggg gat gcc tgt gaa gct gac gct ggg gga ccc ttt gtc atg aag    912
Arg Gly Asp Ala Cys Glu Ala Asp Ala Gly Gly Pro Phe Val Met Lys
                  290                    295                    300
agc ccc ttt aac aac cgc tgg tat caa atg ggc atc gtc tca tgg ggt    960
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305                    310                    315                    320
gaa ggc tgt gac cgg gat ggg aaa tat ggc ttc tac aca cat gtg ttc    1008
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
                       325                    330                    335
cgc ctg aag aag tgg ata cag aag gtc att gat cag ttt gga gag tag    1056
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
                  340                    345                    350
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<210> 24
<211> 351
<212> PRT
<213> Homo sapiens

<400> 24
Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1   5   10   15

Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
          20   25   30
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
          35   40   45
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
     50   55   60
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65   70   75   80
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
               85   90   95
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
          100   105   110
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
          115   120   125
Trp Val Leu Thr Ala Ala His Cys Leu Leu Tyr Pro Pro Trp Asp Lys
     130   135   140
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
145   150   155   160
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
               165   170   175
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
          180   185   190
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
          195   200   205
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
     210   215   220
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225   230   235   240
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
               245   250   255
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
          260   265   270
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
          275   280   285
Arg Gly Asp Ala Cys Glu Ala Asp Ala Gly Gly Pro Phe Val Met Lys
     290   295   300
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305   310   315   320
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
               325   330   335
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
          340   345   350

<210> 25
<211> 1056
<212> DNA
<213> Homo sapiens

<220>

<221> CDS
<222> (1)..(1056)
<223>

<400> 25

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atg gcg cac gtc cga ggc ttg cag ctg cct ggc tgc ctg gcc ctg gct      48
Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1               5                   10                  15

gcc ctg tgt agc ctt gtg cac agc cag cat gtg ttc ctg gct cct cag      96
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
                20                  25                  30

caa gca cgg tcg ctg ctc cag cgg gtc cgg cga acc gcc acc agt gag     144
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
        35                  40                  45

tac cag act ttc ttc aat ccg agg acc ttt ggc tcg gga gag gca gac     192
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
    50                  55                  60

tgt ggg ctg cga cct ctg ttc gag aag aag tcg ctg gag gac aaa acc     240
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65                  70                  75                  80

gaa aga gag ctc ctg gaa tcc tac atc gac ggg cgc att gtg gag ggc     288
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
                85                  90                  95

tcg gat gca gag atc ggc atg tca cct tgg cag gtg atg ctt ttc cgg     336
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
                100                 105                 110

aag agt ccc cag gag ctg ctg tgt ggg gcc agc ctc atc agt gac cgc     384
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
            115                 120                 125

tgg gtc ctc acc gcc gcc gcc tgc ctc ctg tac ccg ccc tgg gac aag     432
Trp Val Leu Thr Ala Ala Ala Cys Leu Leu Tyr Pro Pro Trp Asp Lys
        130                 135                 140

aac ttc acc gag aat gac ctt ctg gtg cgc att ggc aag cac tcc cgc     480
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
145                 150                 155                 160

aca agg tac gag cga aac att gaa aag ata tcc atg ttg gaa aag atc     528
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
                165                 170                 175

tac atc cac ccc agg tac aac tgg cgg gag aac ctg gac cgg gac att     576
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
                180                 185                 190

gcc ctg atg aag ctg aag aag cct gtt gcc ttc agt gac tac att cac     624
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
            195                 200                 205

cct gtg tgt ctg ccc gac agg gag acg gca gcc agc ttg ctc cag gct     672
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
        210                 215                 220

gga tac aag ggg cgg gtg aca ggc tgg ggc aac ctg aag gag acg tgg     720
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
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      225                  230                  235                  240
aca gcc aac gtt ggt aag ggg cag ccc agt gtc ctg cag gtg gtg aac        768
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
                      245                  250                  255
ctg ccc att gtg gag cgg ccg gtc tgc aag gac tcc acc cgg atc cgc        816
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
                      260                  265                  270
atc act gac aac atg ttc tgt gct ggt tac aag cct gat gaa ggg aaa        864
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
                      275                  280                  285
cga ggg gat gcc tgt gaa ggg gac gcc ggg gga ccc ttt gtc atg aag        912
Arg Gly Asp Ala Cys Glu Gly Asp Ala Gly Gly Pro Phe Val Met Lys
             290                  295                  300
agc ccc ttt aac aac cgc tgg tat caa atg ggc atc gtc tca tgg ggt        960
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305                  310                  315                  320
gaa ggc tgt gac cgg gat ggg aaa tat ggc ttc tac aca cat gtg ttc       1008
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
                      325                  330                  335
cgc ctg aag aag tgg ata cag aag gtc att gat cag ttt gga gag tag       1056
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
                      340                  345                  350
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<210> 26
<211> 351
<212> PRT
<213> Homo sapiens

<400> 26

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Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1                5                   10                  15
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
                 20                  25                  30
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
        35                  40                  45
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
     50                  55                  60
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65                  70                  75                  80
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
                 85                  90                  95
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
                 100                 105                 110
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
        115                 120                 125
Trp Val Leu Thr Ala Ala Ala Cys Leu Leu Tyr Pro Pro Trp Asp Lys
     130                 135                 140
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
145                 150                 155                 160
```

Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
           165   170   175

Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
           180   185   190

Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
           195   200   205

Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
        210   215   220

Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225   230   235   240

Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
           245   250   255

Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
           260   265   270

Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
          275   280   285

Arg Gly Asp Ala Cys Glu Gly Asp Ala Gly Gly Pro Phe Val Met Lys
        290   295   300

Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305   310   315   320

Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
          325   330   335

Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
        340   345   350

<210> 27
<211> 1056
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)..(1056)
<223>

<400> 27
atg gcg cac gtc cga ggc ttg cag ctg cct ggc tgc ctg gcc ctg gct   48
Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1   5   10   15

gcc ctg tgt agc ctt gtg cac agc cag cat gtg ttc ctg gct cct cag   96
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
          20   25   30

caa gca cgg tcg ctg ctc cag cgg gtc cgg cga acc gcc acc agt gag   144
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
          35   40   45

tac cag act ttc ttc aat ccg agg acc ttt ggc tcg gga gag gca gac   192
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
       50   55   60

tgt ggg ctg cga cct ctg ttc gag aag aag tcg ctg gag gac aaa acc   240

Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65   70   75   80

gaa aga gag ctc ctg gaa tcc tac atc gac ggg cgc att gtg gag ggc   288
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
                    85   90   95

tcg gat gca gag atc ggc atg tca cct tgg cag gtg atg ctt ttc cgg   336
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
                    100   105   110

aag agt ccc cag gag ctg ctg tgt ggg gcc agc ctc atc agt gac cgc   384
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
                    115   120   125

tgg gtc ctc acc gcc gcc cac tgc ctc ctg tac ccg ccc tgg gac aag   432
Trp Val Leu Thr Ala Ala His Cys Leu Leu Tyr Pro Pro Trp Asp Lys
                    130   135   140

aac ttc acc gag aat gac ctt ctg gtg cgc att ggc aag cac tcc cgc   480
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
145   150   155   160

aca agg tac gag cga aac att gaa gaa ata tcc atg ttg gaa aag atc   528
Thr Arg Tyr Glu Arg Asn Ile Glu Glu Ile Ser Met Leu Glu Lys Ile
                    165   170   175

tac atc cac ccc agg tac aac tgg cgg gag aac ctg gac cgg gac att   576
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
                    180   185   190

gcc ctg atg aag ctg aag aag cct gtt gcc ttc agt gac tac att cac   624
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
                    195   200   205

cct gtg tgt ctg ccc gac agg gag acg gca gcc agc ttg ctc cag gct   672
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
                    210   215   220

gga tac aag ggg cgg gtg aca ggc tgg ggc aac ctg aag gag acg tgg   720
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225   230   235   240

aca gcc aac gtt ggt aag ggg cag ccc agt gtc ctg cag gtg gtg aac   768
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
                    245   250   255

ctg ccc att gtg gag cgg ccg gtc tgc aag gac tcc acc cgg atc cgc   816
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
                    260   265   270

atc act gac aac atg ttc tgt gct ggt tac aag cct gat gaa ggg aaa   864
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
                    275   280   285

cga ggg gat gcc tgt gaa gct gac ggg ggg gga ccc ttt gtc atg aag   912
Arg Gly Asp Ala Cys Glu Ala Asp Gly Gly Gly Pro Phe Val Met Lys
                    290   295   300

agc ccc ttt aac aac cgc tgg tat caa atg ggc atc gtc tca tgg ggt   960
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305   310   315   320

gaa ggc tgt gac cgg gat ggg aaa tat ggc ttc tac aca cat gtg ttc   1008
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe

```
                 325                330                335
cgc ctg aag aag tgg ata cag aag gtc att gat cag ttt gga gag tag    1056
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
            340                345                350
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<210> 28
<211> 351
<212> PRT
<213> Homo sapiens

<400> 28

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Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1               5                10               15
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
            20               25               30
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
        35               40               45
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
    50               55               60
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65               70               75               80
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
            85               90               95
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
            100              105              110
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
        115              120              125
Trp Val Leu Thr Ala Ala His Cys Leu Leu Tyr Pro Pro Trp Asp Lys
    130              135              140
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
145              150              155              160
Thr Arg Tyr Glu Arg Asn Ile Glu Glu Ile Ser Met Leu Glu Lys Ile
            165              170              175
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
            180              185              190
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
        195              200              205
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
    210              215              220
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225              230              235              240
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
            245              250              255
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
            260              265              270
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
        275              280              285
Arg Gly Asp Ala Cys Glu Ala Asp Gly Gly Gly Pro Phe Val Met Lys
    290              295              300
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```
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305             310             315             320
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
            325             330             335
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
        340             345             350
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<210>  29
<211>  1056
<212>  DNA
<213>  Homo sapiens

<220>
<221>  CDS
<222>  (1)..(1056)
<223>

<400>  29
atg gcg cac gtc cga ggc ttg cag ctg cct ggc tgc ctg gcc ctg gct        48
Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1               5               10              15
gcc ctg tgt agc ctt gtg cac agc cag cat gtg ttc ctg gct cct cag       96
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
                20              25              30
caa gca cgg tcg ctg ctc cag cgg gtc cgg cga acc gcc acc agt gag      144
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
        35              40              45
tac cag act ttc ttc aat ccg agg acc ttt ggc tcg gga gag gca gac      192
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
    50              55              60
tgt ggg ctg cga cct ctg ttc gag aag aag tcg ctg gag gac aaa acc      240
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65              70              75              80
gaa aga gag ctc ctg gaa tcc tac atc gac ggg cgc att gtg gag ggc      288
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
                85              90              95
tcg gat gca gag atc ggc atg tca cct tgg cag gtg atg ctt ttc cgg      336
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
            100             105             110
aag agt ccc cag gag ctg ctg tgt ggg gcc agc ctc atc agt gac cgc      384
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
        115             120             125
tgg gtc ctc acc gcc gcc cac tgc ctc ctg tac ccg ccc tgg gac aag      432
Trp Val Leu Thr Ala Ala His Cys Leu Leu Tyr Pro Pro Trp Asp Lys
    130             135             140
aac ttc acc gag aat gac ctt ctg gtg cgc att ggc aag cac tcc cgc      480
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
145             150             155             160
aca agg tac gag cga aac att gaa gaa ata tcc atg ttg gaa aag atc      528
```

```
Thr Arg Tyr Glu Arg Asn Ile Glu Glu Ile Ser Met Leu Glu Lys Ile
            165             170             175
tac atc cac ccc agg tac aac tgg cgg gag aac ctg gac cgg aac att      576
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asn Ile
            180             185             190
gcc ctg atg aag ctg aag aag cct gtt gcc ttc agt gac tac att cac      624
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
            195             200             205
cct gtg tgt ctg ccc gac agg gag acg gca gcc agc ttg ctc cag gct      672
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
            210             215             220
gga tac aag ggg cgg gtg aca ggc tgg ggc aac ctg aag gag acg tgg      720
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225             230             235             240
aca gcc aac gtt ggt aag ggg cag ccc agt gtc ctg cag gtg gtg aac      768
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
            245             250             255
ctg ccc att gtg gag cgg ccg gtc tgc aag gac tcc acc cgg atc cgc      816
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
            260             265             270
atc act gac aac atg ttc tgt gct ggt tac aag cct gat gaa ggg aaa      864
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
            275             280             285
cga ggg gat gcc tgt gaa gct gac gct ggg gga ccc ttt gtc atg aag      912
Arg Gly Asp Ala Cys Glu Ala Asp Ala Gly Gly Pro Phe Val Met Lys
            290             295             300
agc ccc ttt aac aac cgc tgg tat caa atg ggc atc gtc tca tgg ggt      960
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305             310             315             320
gaa ggc tgt gac cgg gat ggg aaa tat ggc ttc tac aca cat gtg ttc     1008
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
            325             330             335
cgc ctg aag aag tgg ata cag aag gtc att gat cag ttt gga gag tag     1056
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
            340             345             350


<210>   30
<211>   351
<212>   PRT
<213>   Homo sapiens


<400>   30
Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1               5               10              15
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
                20              25              30
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
            35              40              45
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
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              50                      55                      60
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65                      70                      75                      80
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
                        85                      90                      95
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
                        100                     105                     110
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
                        115                     120                     125
Trp Val Leu Thr Ala Ala His Cys Leu Leu Tyr Pro Pro Trp Asp Lys
                        130                     135                     140
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
145                     150                     155                     160
Thr Arg Tyr Glu Arg Asn Ile Glu Glu Ile Ser Met Leu Glu Lys Ile
                        165                     170                     175
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asn Ile
                        180                     185                     190
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
                        195                     200                     205
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
                        210                     215                     220
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225                     230                     235                     240
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
                        245                     250                     255
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
                        260                     265                     270
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
                        275                     280                     285
Arg Gly Asp Ala Cys Glu Ala Asp Ala Gly Gly Pro Phe Val Met Lys
                        290                     295                     300
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305                     310                     315                     320
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
                        325                     330                     335
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
                        340                     345                     350
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<210> 31
<211> 1056
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)..(1056)
<223>

<400> 31

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atg gcg cac gtc cga ggc ttg cag ctg cct ggc tgc ctg gcc ctg gct       48
Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1               5                   10                  15

gcc ctg tgt agc ctt gtg cac agc cag cat gtg ttc ctg gct cct cag       96
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
                20                  25                  30

caa gca cgg tcg ctg ctc cag cgg gtc cgg cga acc gcc acc agt gag      144
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
            35                  40                  45

tac cag act ttc ttc aat ccg agg acc ttt ggc tcg gga gag gca gac      192
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
        50                  55                  60

tgt ggg ctg cga cct ctg ttc gag aag aag tcg ctg gag gac aaa acc      240
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65                  70                  75                  80

gaa aga gag ctc ctg gaa tcc tac atc gac ggg cgc att gtg gag ggc      288
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
                85                  90                  95

tcg gat gca gag atc ggc atg tca cct tgg cag gtg atg ctt ttc cgg      336
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
                100                 105                 110

aag agt ccc cag gag ctg ctg tgt ggg gcc agc ctc atc agt gac cgc      384
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
            115                 120                 125

tgg gtc ctc acc gcc gcc cac tgc ctc ctg tac ccg ccc tgg gac aag      432
Trp Val Leu Thr Ala Ala His Cys Leu Leu Tyr Pro Pro Trp Asp Lys
        130                 135                 140

aac ttc acc gag aat gac ctt ctg gtg cgc att ggc aag cac tcc cgc      480
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
145                 150                 155                 160

aca agg tac gag cga aac att gaa aag ata tcc atg ttg gaa aag atc      528
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
                165                 170                 175

tac atc cac ccc agg tac aac tgg cgg gag aac ctg gac cgg gac att      576
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
                180                 185                 190

gcc ctg atg aag ctg aag aag cct gtt gcc ttc agt gac tac att cac      624
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
            195                 200                 205

cct gtg tgt ctg ccc gac agg gag acg gca gcc agc ttg ctc cag gct      672
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
        210                 215                 220

gga tac aag ggg cgg gtg aca ggc tgg ggc aac ctg aag gag acg tgg      720
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225                 230                 235                 240

aca gcc aac gtt ggt aag ggg cag ccc agt gtc ctg cag gtg gtg aac      768
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
                245                 250                 255

ctg ccc att gtg gag cgg ccg gtc tgc aag gac tcc acc cgg atc cgc      816
```

```
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
        260                 265                 270
atc act gac aac atg ttc tgt gct ggt tac aag cct gat gaa ggg aaa    864
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
        275                 280                 285
cga ggg gat gcc tgt gaa gct gac agt ggg gga ccc ttt gtc atg aag    912
Arg Gly Asp Ala Cys Glu Ala Asp Ser Gly Gly Pro Phe Val Met Lys
        290                 295                 300
agc ccc ttt aac aac cgc tgg tat caa atg ggc atc gtc tca tgg ggt    960
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305                 310                 315                 320
gaa ggc tgt gac cgg gat ggg aaa tat ggc ttc tac aca cat gtg ttc   1008
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
                325                 330                 335
cgc ctg aag aag tgg ata cag aag gtc att gat cag ttt gga gag tag   1056
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
        340                 345                 350
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<210> 32
<211> 351
<212> PRT
<213> Homo sapiens

<400> 32

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Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1               5                   10                  15
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
        20                  25                  30
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
        35                  40                  45
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
    50                  55                  60
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65                  70                  75                  80
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
                85                  90                  95
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
                100                 105                 110
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
        115                 120                 125
Trp Val Leu Thr Ala Ala His Cys Leu Leu Tyr Pro Pro Trp Asp Lys
        130                 135                 140
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
145                 150                 155                 160
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
                165                 170                 175
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
                180                 185                 190
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
```

```
                 195                   200                   205
       Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
           210                   215                   220
       Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
       225                   230                   235                   240
       Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
                   245                   250                   255
       Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
                   260                   265                   270
       Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
               275                   280                   285
       Arg Gly Asp Ala Cys Glu Ala Asp Ser Gly Gly Pro Phe Val Met Lys
           290                   295                   300
       Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
       305                   310                   315                   320
       Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
                   325                   330                   335
       Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
                   340                   345                   350
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<210> 33
<211> 1056
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)..(1056)
<223>

<400> 33

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atg gcg cac gtc cga ggc ttg cag ctg cct ggc tgc ctg gcc ctg gct      48
Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1                5                  10                  15

gcc ctg tgt agc ctt gtg cac agc cag cat gtg ttc ctg gct cct cag      96
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
                20                  25                  30

caa gca cgg tcg ctg ctc cag cgg gtc cgg cga acc gcc acc agt gag     144
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
        35                  40                  45

tac cag act ttc ttc aat ccg agg acc ttt ggc tcg gga gag gca gac     192
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
    50                  55                  60

tgt ggg ctg cga cct ctg ttc gag aag aag tcg ctg gag gac aaa acc     240
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65                  70                  75                  80

gaa aga gag ctc ctg gaa tcc tac atc gac ggg cgc att gtg gag ggc     288
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
                85                  90                  95
```

```
tcg gat gca gag atc ggc atg tca cct tgg cag gtg atg ctt ttc cgg     336
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
            100                 105                 110
aag agt ccc cag gag ctg ctg tgt ggg gcc agc ctc atc agt gac cgc     384
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
            115                 120                 125
tgg gtc ctc acc gcc gcc gcc tgc ctc ctg tac ccg ccc tgg gac aag     432
Trp Val Leu Thr Ala Ala Ala Cys Leu Leu Tyr Pro Pro Trp Asp Lys
            130                 135                 140
aac ttc acc gag aat gac ctt ctg gtg cgc att ggc aag cac tcc cgc     480
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
        145                 150                 155                 160
aca agg tac gag cga aac att gaa aag ata tcc atg ttg gaa aag atc     528
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
                165                 170                 175
tac atc cac ccc agg tac aac tgg cgg gag aac ctg gac cgg gac att     576
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
                180                 185                 190
gcc ctg atg aag ctg aag aag cct gtt gcc ttc agt gac tac att cac     624
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
                195                 200                 205
cct gtg tgt ctg ccc gac agg gag acg gca gcc agc ttg ctc cag gct     672
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
            210                 215                 220
gga tac aag ggg cgg gtg aca ggc tgg ggc aac ctg aag gag acg tgg     720
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
        225                 230                 235                 240
aca gcc aac gtt ggt aag ggg cag ccc agt gtc ctg cag gtg gtg aac     768
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
                245                 250                 255
ctg ccc att gtg gag cgg ccg gtc tgc aag gac tcc acc cgg atc cgc     816
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
                260                 265                 270
atc act gac aac atg ttc tgt gct ggt tac aag cct gat gaa ggg aaa     864
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
            275                 280                 285
cga ggg gat gcc tgt gaa ggg gac ggg ggg gga ccc ttt gtc atg aag     912
Arg Gly Asp Ala Cys Glu Gly Asp Gly Gly Gly Pro Phe Val Met Lys
            290                 295                 300
agc ccc ttt aac aac cgc tgg tat caa atg ggc atc gtc tca tgg ggt     960
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
        305                 310                 315                 320
gaa ggc tgt gac cgg gat ggg aaa tat ggc ttc tac aca cat gtg ttc    1008
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
                325                 330                 335
cgc ctg aag aag tgg ata cag aag gtc att gat cag ttt gga gag tag    1056
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
                340                 345                 350
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<210> 34
<211> 351
<212> PRT
<213> Homo sapiens

<400> 34
Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1   5   10   15
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
                20   25   30
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
            35   40   45
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
    50   55   60
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65   70   75   80
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
                85   90   95
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
                100   105   110
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
            115   120   125
Trp Val Leu Thr Ala Ala Ala Cys Leu Leu Tyr Pro Pro Trp Asp Lys
    130   135   140
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
145   150   155   160
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
            165   170   175
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
            180   185   190
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
        195   200   205
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
    210   215   220
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225   230   235   240
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
            245   250   255
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
            260   265   270
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
        275   280   285
Arg Gly Asp Ala Cys Glu Gly Asp Gly Gly Gly Pro Phe Val Met Lys
    290   295   300
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305   310   315   320
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
            325   330   335
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu

340   345   350

<210> 35
<211> 1056
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)..(1056)
<223>

<400> 35

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atg gcg cac gtc cga ggc ttg cag ctg cct ggc tgc ctg gcc ctg gct     48
Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1               5                   10                  15

gcc ctg tgt agc ctt gtg cac agc cag cat gtg ttc ctg gct cct cag     96
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
                20                  25                  30

caa gca cgg tcg ctg ctc cag cgg gtc cgg cga acc gcc acc agt gag    144
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
        35                  40                  45

tac cag act ttc ttc aat ccg agg acc ttt ggc tcg gga gag gca gac    192
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
    50                  55                  60

tgt ggg ctg cga cct ctg ttc gag aag aag tcg ctg gag gac aaa acc    240
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65                  70                  75                  80

gaa aga gag ctc ctg gaa tcc tac atc gac ggg cgc att gtg gag ggc    288
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
                85                  90                  95

tcg gat gca gag atc ggc atg tca cct tgg cag gtg atg ctt ttc cgg    336
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
                100                 105                 110

aag agt ccc cag gag ctg ctg tgt ggg gcc agc ctc atc agt gac cgc    384
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
            115                 120                 125

tgg gtc ctc acc gcc gcc tcc tgc ctc ctg tac ccg ccc tgg gac aag    432
Trp Val Leu Thr Ala Ala Ser Cys Leu Leu Tyr Pro Pro Trp Asp Lys
    130                 135                 140

aac ttc acc gag aat gac ctt ctg gtg cgc att ggc aag cac tcc cgc    480
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
145                 150                 155                 160

aca agg tac gag cga aac att gaa aag ata tcc atg ttg gaa aag atc    528
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
                165                 170                 175

tac atc cac ccc agg tac aac tgg cgg gag aac ctg gac cgg gac att    576
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
                180                 185                 190
```

```
gcc ctg atg aag ctg aag aag cct gtt gcc ttc agt gac tac att cac      624
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
        195                 200                 205
cct gtg tgt ctg ccc gac agg gag acg gca gcc agc ttg ctc cag gct      672
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
        210                 215                 220
gga tac aag ggg cgg gtg aca ggc tgg ggc aac ctg aag gag acg tgg      720
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225                 230                 235                 240
aca gcc aac gtt ggt aag ggg cag ccc agt gtc ctg cag gtg gtg aac      768
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
                245                 250                 255
ctg ccc att gtg gag cgg ccg gtc tgc aag gac tcc acc cgg atc cgc      816
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
            260                 265                 270
atc act gac aac atg ttc tgt gct ggt tac aag cct gat gaa ggg aaa      864
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
            275                 280                 285
cga ggg gat gcc tgt gaa ggg gac gcc ggg gga ccc ttt gtc atg aag      912
Arg Gly Asp Ala Cys Glu Gly Asp Ala Gly Gly Pro Phe Val Met Lys
        290                 295                 300
agc ccc ttt aac aac cgc tgg tat caa atg ggc atc gtc tca tgg ggt      960
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305                 310                 315                 320
gaa ggc tgt gac cgg gat ggg aaa tat ggc ttc tac aca cat gtg ttc     1008
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
                325                 330                 335
cgc ctg aag aag tgg ata cag aag gtc att gat cag ttt gga gag tag     1056
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu.
        340                 345                 350
```

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<210>  36
<211>  351
<212>  PRT
<213>  Homo sapiens


<400>  36
Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1               5                   10                  15
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
            20                  25                  30
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
            35                  40                  45
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
        50                  55                  60
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65                  70                  75                  80
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
                85                  90                  95
```

```
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
              100             105             110
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
              115             120             125
Trp Val Leu Thr Ala Ala Ser Cys Leu Leu Tyr Pro Pro Trp Asp Lys
         130             135             140
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
145             150             155             160
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
              165             170             175
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
              180             185             190
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
         195             200             205
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
         210             215             220
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225             230             235             240
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
              245             250             255
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
              260             265             270
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
         275             280             285
Arg Gly Asp Ala Cys Glu Gly Asp Ala Gly Gly Pro Phe Val Met Lys
         290             295             300
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305             310             315             320
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
              325             330             335
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
         340             345             350
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<210> 37
<211> 1056
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)..(1056)
<223>

<400> 37
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atg gcg cac gtc cga ggc ttg cag ctg cct ggc tgc ctg gcc ctg gct      48
Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1               5               10              15
gcc ctg tgt agc ctt gtg cac agc cag cat gtg ttc ctg gct cct cag      96
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
```

```
            20                    25                    30
caa gca cgg tcg ctg ctc cag cgg gtc cgg cga acc gcc acc agt gag      144
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
         35                    40                    45
tac cag act ttc ttc aat ccg agg acc ttt ggc tcg gga gag gca gac      192
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
         50                    55                    60
tgt ggg ctg cga cct ctg ttc gag aag aag tcg ctg gag gac aaa acc      240
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65                    70                    75                    80
gaa aga gag ctc ctg gaa tcc tac atc gac ggg cgc att gtg gag ggc      288
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
                  85                    90                    95
tcg gat gca gag atc ggc atg tca cct tgg cag gtg atg ctt ttc cgg      336
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
                 100                   105                   110
aag agt ccc cag gag ctg ctg tgt ggg gcc agc ctc atc agt gac cgc      384
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
                 115                   120                   125
tgg gtc ctc acc gcc gcc gcc tgc ctc ctg tac ccg ccc tgg gac aag      432
Trp Val Leu Thr Ala Ala Ala Cys Leu Leu Tyr Pro Pro Trp Asp Lys
         130                   135                   140
aac ttc acc gag aat gac ctt ctg gtg cgc att ggc aag cac tcc cgc      480
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
145                   150                   155                   160
aca agg tac gag cga aac att gaa gag ata tcc atg ttg gaa aag atc      528
Thr Arg Tyr Glu Arg Asn Ile Glu Glu Ile Ser Met Leu Glu Lys Ile
                 165                   170                   175
tac atc cac ccc agg tac aac tgg cgg gag aac ctg gac cgg gac att      576
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
                 180                   185                   190
gcc ctg atg aag ctg aag aag cct gtt gcc ttc agt gac tac att cac      624
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
                 195                   200                   205
cct gtg tgt ctg ccc gac agg gag acg gca gcc agc ttg ctc cag gct      672
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
         210                   215                   220
gga tac aag ggg cgg gtg aca ggc tgg ggc aac ctg aag gag acg tgg      720
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225                   230                   235                   240
aca gcc aac gtt ggt aag ggg cag ccc agt gtc ctg cag gtg gtg aac      768
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
                 245                   250                   255
ctg ccc att gtg gag cgg ccg gtc tgc aag gac tcc acc cgg atc cgc      816
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
                 260                   265                   270
atc act gac aac atg ttc tgt gct ggt tac aag cct gat gaa ggg aaa      864
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
         275                   280                   285
```

```
cga ggg gat gcc tgt gaa ggg gac gcc ggg gga ccc ttt gtc atg aag        912
Arg Gly Asp Ala Cys Glu Gly Asp Ala Gly Gly Pro Phe Val Met Lys
    290             295             300
agc ccc ttt aac aac cgc tgg tat caa atg ggc atc gtc tca tgg ggt        960
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305             310             315             320
gaa ggc tgt gac cgg gat ggg aaa tat ggc ttc tac aca cat gtg ttc       1008
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
                325             330             335
cgc ctg aag aag tgg ata cag aag gtc att gat cag ttt gga gag tag       1056
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
                340             345             350
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<210> 38
<211> 351
<212> PRT
<213> Homo sapiens

<400> 38
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Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1               5               10              15
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
            20              25              30
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
        35              40              45
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
        50              55              60
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65              70              75              80
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
            85              90              95
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
            100             105             110
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
        115             120             125
Trp Val Leu Thr Ala Ala Ala Cys Leu Leu Tyr Pro Pro Trp Asp Lys
    130             135             140
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
145             150             155             160
Thr Arg Tyr Glu Arg Asn Ile Glu Glu Ile Ser Met Leu Glu Lys Ile
            165             170             175
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
            180             185             190
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
        195             200             205
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
    210             215             220
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225             230             235             240
```

```
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
                245             250             255
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
            260             265             270
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
        275             280             285
Arg Gly Asp Ala Cys Glu Gly Asp Ala Gly Gly Pro Phe Val Met Lys
        290             295             300
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305             310             315             320
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
            325             330             335
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
            340             345             350
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<210> 39
<211> 1056
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)..(1056)
<223>

<400> 39
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atg gcg cac gtc cga ggc ttg cag ctg cct ggc tgc ctg gcc ctg gct     48
Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1               5               10              15
gcc ctg tgt agc ctt gtg cac agc cag cat gtg ttc ctg gct cct cag     96
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
                20              25              30
caa gca cgg tcg ctg ctc cag cgg gtc cgg cga acc gcc acc agt gag    144
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
            35              40              45
tac cag act ttc ttc aat ccg agg acc ttt ggc tcg gga gag gca gac    192
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
        50              55              60
tgt ggg ctg cga cct ctg ttc gag aag aag tcg ctg gag gac aaa acc    240
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65              70              75              80
gaa aga gag ctc ctg gaa tcc tac atc gac ggg cgc att gtg gag ggc    288
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
                85              90              95
tcg gat gca gag atc ggc atg tca cct tgg cag gtg atg ctt ttc cgg    336
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
                100             105             110
aag agt ccc gag gag ctg ctg tgt ggg gcc agc ctc atc agt gac cgc    384
Lys Ser Pro Glu Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
```

```
              115                    120                      125
tgg gtc ctc acc gcc gcc gcc tgc ctc ctg tac ccg ccc tgg gac aag      432
Trp Val Leu Thr Ala Ala Ala Cys Leu Leu Tyr Pro Pro Trp Asp Lys
     130                    135                      140
aac ttc acc gag aat gac ctt ctg gtg cgc att ggc aag cac tcc cgc      480
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
145                    150                      155                  160
aca agg tac gag cga aac att gaa aag ata tcc atg ttg gaa aag atc      528
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
                    165                    170                      175
tac atc cac ccc agg tac aac tgg cgg gag aac ctg gac cgg gac att      576
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
               180                    185                      190
gcc ctg atg aag ctg aag aag cct gtt gcc ttc agt gac tac att cac      624
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
               195                    200                      205
cct gtg tgt ctg ccc gac agg gag acg gca gcc agc ttg ctc cag gct      672
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
          210                    215                      220
gga tac aag ggg cgg gtg aca ggc tgg ggc aac ctg aag gag acg tgg      720
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225                    230                      235                  240
aca gcc aac gtt ggt aag ggg cag ccc agt gtc ctg cag gtg gtg aac      768
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
                    245                    250                      255
ctg ccc att gtg gag cgg ccg gtc tgc aag gac tcc acc cgg atc cgc      816
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
               260                    265                      270
atc act gac aac atg ttc tgt gct ggt tac aag cct gat gaa ggg aaa      864
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
          275                    280                      285
cga ggg gat gcc tgt gaa ggg gac gcc ggg gga ccc ttt gtc atg aag      912
Arg Gly Asp Ala Cys Glu Gly Asp Ala Gly Gly Pro Phe Val Met Lys
          290                    295                      300
agc ccc ttt aac aac cgc tgg tat caa atg ggc atc gtc tca tgg ggt      960
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305                    310                      315                  320
gaa ggc tgt gac cgg gat ggg aaa tat ggc ttc tac aca cat gtg ttc     1008
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
               325                    330                      335
cgc ctg aag aag tgg ata cag aag gtc att gat cag ttt gga gag tag     1056
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
          340                    345                      350


<210>   40
<211>   351
<212>   PRT
<213>   Homo sapiens
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<400> 40

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Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1               5               10              15
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
            20              25              30
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
        35              40              45
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
    50              55              60
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65              70              75              80
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
            85              90              95
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
            100             105             110
Lys Ser Pro Glu Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
        115             120             125
Trp Val Leu Thr Ala Ala Ala Cys Leu Leu Tyr Pro Pro Trp Asp Lys
    130             135             140
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
145             150             155             160
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
            165             170             175
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
            180             185             190
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
        195             200             205
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
    210             215             220
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225             230             235             240
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
            245             250             255
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
            260             265             270
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
        275             280             285
Arg Gly Asp Ala Cys Glu Gly Asp Ala Gly Gly Pro Phe Val Met Lys
    290             295             300
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305             310             315             320
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
            325             330             335
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
        340             345             350
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<210> 41
<211> 1056
<212> DNA

<213> Homo sapiens

<220>
<221> CDS
<222> (1)..(1056)
<223>

<400> 41

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atg gcg cac gtc cga ggc ttg cag ctg cct ggc tgc ctg gcc ctg gct      48
Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1               5                   10                  15

gcc ctg tgt agc ctt gtg cac agc cag cat gtg ttc ctg gct cct cag      96
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
                20                  25                  30

caa gca cgg tcg ctg ctc cag cgg gtc cgg cga acc gcc acc agt gag     144
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
            35                  40                  45

tac cag act ttc ttc aat ccg agg acc ttt ggc tcg gga gag gca gac     192
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
        50                  55                  60

tgt ggg ctg cga cct ctg ttc gag aag aag tcg ctg gag gac aaa acc     240
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65                  70                  75                  80

gaa aga gag ctc ctg gaa tcc tac atc gac ggg cgc att gtg gag ggc     288
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
                85                  90                  95

tcg gat gca gag atc ggc atg tca cct tgg cag gtg atg ctt ttc cgg     336
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
                100                 105                 110

aag agt ccc cag gag ctg ctg tgt ggg gcc agc ctc atc agt gac cgc     384
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
            115                 120                 125

tgg gtc ctc acc gcc gcc cac tgc ctc ctg tac ccg ccc tgg gac aag     432
Trp Val Leu Thr Ala Ala His Cys Leu Leu Tyr Pro Pro Trp Asp Lys
        130                 135                 140

aac ttc acc gag aat gac ctt ctg gtg cgc att ggc aag cac tcc cgc     480
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
145                 150                 155                 160

aca agg tac gag cga aac att gaa aag ata tcc atg ttg gaa aag atc     528
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
                165                 170                 175

tac atc cac ccc agg tac aac tgg cgg gag aac ctg gac cgg gcc att     576
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Ala Ile
                180                 185                 190

gcc ctg atg aag ctg aag aag cct gtt gcc ttc agt gac tac att cac     624
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
            195                 200                 205

cct gtg tgt ctg ccc gac agg gag acg gca gcc agc ttg ctc cag gct     672
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
```

```
            210                  215                    220
gga tac aag ggg cgg gtg aca ggc tgg ggc aac ctg aag gag acg tgg      720
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225                  230                    235                    240
aca gcc aac gtt ggt aag ggg cag ccc agt gtc ctg cag gtg gtg aac      768
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
                         245                    250                    255
ctg ccc att gtg gag cgg ccg gtc tgc aag gac tcc acc cgg atc cgc      816
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
                  260                    265                    270
atc act gac aac atg ttc tgt gct ggt tac aag cct gat gaa ggg aaa      864
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
                  275                    280                    285
cga ggg gat gcc tgt gaa ggt gac gct ggg gga ccc ttt gtc atg aag      912
Arg Gly Asp Ala Cys Glu Gly Asp Ala Gly Gly Pro Phe Val Met Lys
                  290                    295                    300
agc ccc ttt aac aac cgc tgg tat caa atg ggc atc gtc tca tgg ggt      960
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305                  310                    315                    320
gaa ggc tgt gac cgg gat ggg aaa tat ggc ttc tac aca cat gtg ttc     1008
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
                         325                    330                    335
cgc ctg aag aag tgg ata cag aag gtc att gat cag ttt gga gag tag     1056
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
                  340                    345                    350
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<210>   42
<211>   351
<212>   PRT
<213>   Homo sapiens

<400>   42
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Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1                5                    10                   15
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
                 20                   25                   30
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
            35                   40                   45
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
         50                   55                   60
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65                   70                   75                   80
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
                 85                   90                   95
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
                 100                  105                  110
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
            115                  120                  125
Trp Val Leu Thr Ala Ala His Cys Leu Leu Tyr Pro Pro Trp Asp Lys
```

```
         130                  135                   140
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
145                  150                   155                   160
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
                 165                   170                   175
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Ala Ile
                 180                   185                   190
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
                 195                   200                   205
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
     210                  215                   220
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225                  230                   235                   240
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
                 245                   250                   255
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
                 260                   265                   270
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
                 275                   280                   285
Arg Gly Asp Ala Cys Glu Gly Asp Ala Gly Gly Pro Phe Val Met Lys
     290                  295                   300
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305                  310                   315                   320
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
                 325                   330                   335
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
                 340                   345                   350
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<210>  43
<211>  1056
<212>  DNA
<213>  Homo sapiens

<220>
<221>  CDS
<222>  (1)..(1056)
<223>

<400>  43
atg gcg cac gtc cga ggc ttg cag ctg cct ggc tgc ctg gcc ctg gct      48
Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1               5                   10                  15

gcc ctg tgt agc ctt gtg cac agc cag cat gtg ttc ctg gct cct cag      96
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
                20                  25                  30

caa gca cgg tcg ctg ctc cag cgg gtc cgg cga acc gcc acc agt gag      144
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
            35                  40                  45

tac cag act ttc ttc aat ccg agg acc ttt ggc tcg gga gag gca gac      192
```

```
                Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
                    50                  55                  60
tgt ggg ctg cga cct ctg ttc gag aag aag tcg ctg gag gac aaa acc          240
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65                  70                  75                  80
gaa aga gag ctc ctg gaa tcc tac atc gac ggg cgc att gtg gag ggc          288
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
                        85                  90                  95
tcg gat gca gag atc ggc atg tca cct tgg cag gtg atg ctt ttc cgg          336
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
                100                 105                 110
aag agt ccc cag gag ctg ctg tgt ggg gcc agc ctc atc agt gac cgc          384
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
            115                 120                 125
tgg gtc ctc acc gcc gcc gcc tgc ctc ctg tac ccg ccc tgg gac aag          432
Trp Val Leu Thr Ala Ala Ala Cys Leu Leu Tyr Pro Pro Trp Asp Lys
            130                 135                 140
aac ttc acc gag aat gac ctt ctg gtg cgc att ggc aag cac tcc cgc          480
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
145                 150                 155                 160
aca agg tac gag cga aac att gaa gcc ata tcc atg ttg gaa aag atc          528
Thr Arg Tyr Glu Arg Asn Ile Glu Ala Ile Ser Met Leu Glu Lys Ile
                    165                 170                 175
tac atc cac ccc agg tac aac tgg cgg gag aac ctg gac cgg gac att          576
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
                180                 185                 190
gcc ctg atg aag ctg aag aag cct gtt gcc ttc agt gac tac att cac          624
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
            195                 200                 205
cct gtg tgt ctg ccc gac agg gag acg gca gcc agc ttg ctc cag gct          672
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
            210                 215                 220
gga tac aag ggg cgg gtg aca ggc tgg ggc aac ctg aag gag acg tgg          720
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225                 230                 235                 240
aca gcc aac gtt ggt aag ggg cag ccc agt gtc ctg cag gtg gtg aac          768
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
                    245                 250                 255
ctg ccc att gtg gag cgg ccg gtc tgc aag gac tcc acc cgg atc cgc          816
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
                260                 265                 270
atc act gac aac atg ttc tgt gct ggt tac aag cct gat gaa ggg aaa          864
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
            275                 280                 285
cga ggg gat gcc tgt gaa ggg gac gcc ggg gga ccc ttt gtc atg aag          912
Arg Gly Asp Ala Cys Glu Gly Asp Ala Gly Gly Pro Phe Val Met Lys
            290                 295                 300
agc ccc ttt aac aac cgc tgg tat caa atg ggc atc gtc tca tgg ggt          960
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
```

```
     305                     310                     315                     320
     gaa ggc tgt gac cgg gat ggg aaa tat ggc ttc tac aca cat gtg ttc        1008
     Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
                         325                     330                     335
     cgc ctg aag aag tgg ata cag aag gtc att gat cag ttt gga gag tag        1056
     Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
                     340                     345                     350
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<210> 44
<211> 351
<212> PRT
<213> Homo sapiens

<400> 44

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Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1                   5                   10                  15
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
                20                  25                  30
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
            35                  40                  45
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
        50                  55                  60
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65                  70                  75                  80
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
                85                  90                  95
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
                100                 105                 110
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
            115                 120                 125
Trp Val Leu Thr Ala Ala Ala Cys Leu Leu Tyr Pro Pro Trp Asp Lys
        130                 135                 140
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
145                 150                 155                 160
Thr Arg Tyr Glu Arg Asn Ile Glu Ala Ile Ser Met Leu Glu Lys Ile
                165                 170                 175
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
            180                 185                 190
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
            195                 200                 205
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
        210                 215                 220
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225                 230                 235                 240
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
                245                 250                 255
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
                260                 265                 270
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
```

```
                275                280                285
Arg Gly Asp Ala Cys Glu Gly Asp Ala Gly Gly Pro Phe Val Met Lys
        290                295                300
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305                310                315                320
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
                325                330                335
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
        340                345                350
```

<210> 45
<211> 1056
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)..(1056)
<223>

<400> 45

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atg gcg cac gtc cga ggc ttg cag ctg cct ggc tgc ctg gcc ctg gct      48
Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1                5                10                15

gcc ctg tgt agc ctt gtg cac agc cag cat gtg ttc ctg gct cct cag      96
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
                20                25                30

caa gca cgg tcg ctg ctc cag cgg gtc cgg cga acc gcc acc agt gag     144
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
        35                40                45

tac cag act ttc ttc aat ccg agg acc ttt ggc tcg gga gag gca gac     192
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
    50                55                60

tgt ggg ctg cga cct ctg ttc gag aag aag tcg ctg gag gac aaa acc     240
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65                70                75                80

gaa aga gag ctc ctg gaa tcc tac atc gac ggg cgc att gtg gag ggc     288
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
                85                90                95

tcg gat gca gag atc ggc atg tca cct tgg cag gtg atg ctt ttc cgg     336
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
                100                105                110

aag agt ccc cag gag ctg ctg tgt ggg gcc agc ctc atc agt gac cgc     384
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
        115                120                125

tgg gtc ctc acc gcc gcc gcc tgc ctc ctg tac ccg ccc tgg gac aag     432
Trp Val Leu Thr Ala Ala Ala Cys Leu Leu Tyr Pro Pro Trp Asp Lys
    130                135                140

aac ttc acc gag aat gac ctt ctg gtg cgc att ggc gcc cac tcc cgc     480
```

```
              Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Ala His Ser Arg
              145                 150                 155                 160
aca agg tac gag cga aac att gaa aag ata tcc atg ttg gaa aag atc        528
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
                    165                 170                 175
tac atc cac ccc agg tac aac tgg cgg gag aac ctg gac cgg gac att        576
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
                    180                 185                 190
gcc ctg atg aag ctg aag aag cct gtt gcc ttc agt gac tac att cac        624
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
                    195                 200                 205
cct gtg tgt ctg ccc gac agg gag acg gca gcc agc ttg ctc cag gct        672
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
        210                 215                 220
gga tac aag ggg cgg gtg aca ggc tgg ggc aac ctg aag gag acg tgg        720
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225                 230                 235                 240
aca gcc aac gtt ggt aag ggg cag ccc agt gtc ctg cag gtg gtg aac        768
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
                    245                 250                 255
ctg ccc att gtg gag cgg ccg gtc tgc aag gac tcc acc cgg atc cgc        816
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
                    260                 265                 270
atc act gac aac atg ttc tgt gct ggt tac aag cct gat gaa ggg aaa        864
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
                275                 280                 285
cga ggg gat gcc tgt gaa ggg gac gcc ggg gga ccc ttt gtc atg aag        912
Arg Gly Asp Ala Cys Glu Gly Asp Ala Gly Gly Pro Phe Val Met Lys
        290                 295                 300
agc ccc ttt aac aac cgc tgg tat caa atg ggc atc gtc tca tgg ggt        960
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305                 310                 315                 320
gaa ggc tgt gac cgg gat ggg aaa tat ggc ttc tac aca cat gtg ttc        1008
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
                325                 330                 335
cgc ctg aag aag tgg ata cag aag gtc att gat cag ttt gga gag tag       1056
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
                340                 345                 350


<210>  46
<211>  351
<212>  PRT
<213>  Homo sapiens


<400>  46
Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1               5                   10                  15
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
                20                  25                  30
```

```
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
        35              40              45
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
        50              55              60
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65              70              75              80
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
                85              90              95
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
            100             105             110
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
        115             120             125
Trp Val Leu Thr Ala Ala Ala Cys Leu Leu Tyr Pro Pro Trp Asp Lys
    130             135             140
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Ala His Ser Arg
145             150             155             160
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
            165             170             175
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
            180             185             190
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
        195             200             205
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
    210             215             220
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225             230             235             240
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
            245             250             255
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
            260             265             270
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
        275             280             285
Arg Gly Asp Ala Cys Glu Gly Asp Ala Gly Gly Pro Phe Val Met Lys
    290             295             300
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305             310             315             320
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
            325             330             335
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
            340             345             350
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<210>   47
<211>   1056
<212>   DNA
<213>   Homo sapiens

<220>
<221>   CDS
<222>   (1)..(1056)
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<223>

<400> 47

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atg gcg cac gtc cga ggc ttg cag ctg cct ggc tgc ctg gcc ctg gct        48
Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1               5                   10                  15

gcc ctg tgt agc ctt gtg cac agc cag cat gtg ttc ctg gct cct cag        96
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
            20                  25                  30

caa gca cgg tcg ctg ctc cag cgg gtc cgg cga acc gcc acc agt gag       144
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
        35                  40                  45

tac cag act ttc ttc aat ccg agg acc ttt ggc tcg gga gag gca gac       192
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
    50                  55                  60

tgt ggg ctg cga cct ctg ttc gag aag aag tcg ctg gag gac aaa acc       240
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65                  70                  75                  80

gaa aga gag ctc ctg gaa tcc tac atc gac ggg cgc att gtg gag ggc       288
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
                85                  90                  95

tcg gat gca gag atc ggc atg tca cct tgg cag gtg atg ctt ttc cgg       336
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
            100                 105                 110

aag agt ccc cag gag ctg ctg tgt ggg gcc agc ctc atc agt gac cgc       384
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
        115                 120                 125

tgg gtc ctc acc gcc gcc gcc tgc ctc ctg tac ccg ccc tgg gac aag       432
Trp Val Leu Thr Ala Ala Ala Cys Leu Leu Tyr Pro Pro Trp Asp Lys
    130                 135                 140

aac ttc acc gag aat gac ctt ctg gtg cgc att ggc aag cac tcc cgc       480
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
145                 150                 155                 160

aca agg tac gag cga aac att gaa aag ata tcc atg ttg gaa aag atc       528
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
                165                 170                 175

tac atc cac ccc agg tac aac tgg cgg gag aac ctg gac cgg gac att       576
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
            180                 185                 190

gcc ctg atg aag ctg aag aag cct gtt gcc ttc agt gac tac att cac       624
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
        195                 200                 205

cct gtg tgt ctg ccc gac agg gag acg gca gcc agc ttg ctc cag gct       672
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
    210                 215                 220

gga tac aag ggg cgg gtg aca ggc tgg ggc aac ctg aag gag acg tgg       720
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225                 230                 235                 240

aca gcc aac gtt ggt aag ggg cag ccc agt gtc ctg cag gtg gtg aac       768
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Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
              245             250             255

ctg ccc att gtg gag cgg ccg gtc tgc aag gac tcc acc cgg atc cgc      816
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
              260             265             270

atc act gac aac atg ttc tgt gct ggt tac aag cct gat gaa ggg aaa      864
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
              275             280             285

gcc ggg gat gcc tgt gaa ggg gac gcc ggg gga ccc ttt gtc atg aag      912
Ala Gly Asp Ala Cys Glu Gly Asp Ala Gly Gly Pro Phe Val Met Lys
              290             295             300

agc ccc ttt aac aac cgc tgg tat caa atg ggc atc gtc tca tgg ggt      960
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305             310             315             320

gaa ggc tgt gac cgg gat ggg aaa tat ggc ttc tac aca cat gtg ttc     1008
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
              325             330             335

cgc ctg aag aag tgg ata cag aag gtc att gat cag ttt gga gag tag     1056
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
              340             345             350
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<210> 48
<211> 351
<212> PRT
<213> Homo sapiens

<400> 48
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Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1               5              10              15
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
              20              25              30
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
              35              40              45
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
              50              55              60
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65              70              75              80
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
              85              90              95
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
              100             105             110
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
              115             120             125
Trp Val Leu Thr Ala Ala Ala Cys Leu Leu Tyr Pro Pro Trp Asp Lys
              130             135             140
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
145             150             155             160
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
              165             170             175
```

```
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
          180               185               190
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
          195               200               205
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
          210               215               220
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225               230               235               240
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
              245               250               255
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
          260               265               270
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
          275               280               285
Ala Gly Asp Ala Cys Glu Gly Asp Ala Gly Gly Pro Phe Val Met Lys
      290               295               300
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305               310               315               320
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
              325               330               335
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
          340               345               350
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<210> 49
<211> 1056
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)..(1056)
<223>

<400> 49

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atg gcg cac gtc cga ggc ttg cag ctg cct ggc tgc ctg gcc ctg gct      48
Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1               5               10              15
gcc ctg tgt agc ctt gtg cac agc cag cat gtg ttc ctg gct cct cag      96
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
              20              25              30
caa gca cgg tcg ctg ctc cag cgg gtc cgg cga acc gcc acc agt gag      144
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
          35              40              45
tac cag act ttc ttc aat ccg agg acc ttt ggc tcg gga gag gca gac      192
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
      50              55              60
tgt ggg ctg cga cct ctg ttc gag aag aag tcg ctg gag gac aaa acc      240
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65              70              75              80
```

```
gaa aga gag ctc ctg gaa tcc tac atc gac ggg cgc att gtg gag ggc        288
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
                85                  90                  95

tcg gat gca gag atc ggc atg tca cct tgg cag gtg atg ctt ttc cgg        336
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
               100                 105                 110

aag agt ccc cag gag ctg ctg tgt ggg gcc agc ctc atc agt gac cgc        384
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
               115                 120                 125

tgg gtc ctc acc gcc gcc gcc tgc ctc ctg tac ccg ccc tgg gac aag        432
Trp Val Leu Thr Ala Ala Ala Cys Leu Leu Tyr Pro Pro Trp Asp Lys
               130                 135                 140

aac ttc acc gag aat gac ctt ctg gtg cgc att ggc aag cac tcc cgc        480
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
145                 150                 155                 160

aca agg tac gag cga aac att gaa tcc ata tcc atg ttg gaa aag atc        528
Thr Arg Tyr Glu Arg Asn Ile Glu Ser Ile Ser Met Leu Glu Lys Ile
                165                 170                 175

tac atc cac ccc agg tac aac tgg cgg gag aac ctg gac cgg gac att        576
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
               180                 185                 190

gcc ctg atg aag ctg aag aag cct gtt gcc ttc agt gac tac att cac        624
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
               195                 200                 205

cct gtg tgt ctg ccc gac agg gag acg gca gcc agc ttg ctc cag gct        672
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
               210                 215                 220

gga tac aag ggg cgg gtg aca ggc tgg ggc aac ctg aag gag acg tgg        720
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225                 230                 235                 240

aca gcc aac gtt ggt aag ggg cag ccc agt gtc ctg cag gtg gtg aac        768
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
                245                 250                 255

ctg ccc att gtg gag cgg ccg gtc tgc aag gac tcc acc cgg atc cgc        816
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
               260                 265                 270

atc act gac aac atg ttc tgt gct ggt tac aag cct gat gaa ggg aaa        864
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
               275                 280                 285

cga ggg gat gcc tgt gaa ggg gac gcc ggg gga ccc ttt gtc atg aag        912
Arg Gly Asp Ala Cys Glu Gly Asp Ala Gly Gly Pro Phe Val Met Lys
               290                 295                 300

agc ccc ttt aac aac cgc tgg tat caa atg ggc atc gtc tca tgg ggt        960
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305                 310                 315                 320

gaa ggc tgt gac cgg gat ggg aaa tat ggc ttc tac aca cat gtg ttc       1008
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
                325                 330                 335

cgc ctg aag aag tgg ata cag aag gtc att gat cag ttt gga gag tag       1056
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Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
        340   345   350

<210> 50
<211> 351
<212> PRT
<213> Homo sapiens

<400> 50
Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1   5   10   15
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
            20   25   30
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
        35   40   45
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
    50   55   60
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65   70   75   80
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
                85   90   95
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
            100   105   110
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
        115   120   125
Trp Val Leu Thr Ala Ala Ala Cys Leu Leu Tyr Pro Pro Trp Asp Lys
    130   135   140
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
145   150   155   160
Thr Arg Tyr Glu Arg Asn Ile Glu Ser Ile Ser Met Leu Glu Lys Ile
            165   170   175
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
            180   185   190
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
        195   200   205
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
    210   215   220
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225   230   235   240
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
            245   250   255
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
            260   265   270
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
        275   280   285
Arg Gly Asp Ala Cys Glu Gly Asp Ala Gly Gly Pro Phe Val Met Lys
    290   295   300
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305   310   315   320

Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
       325   330   335

Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
       340   345   350

<210> 51
<211> 1056
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)..(1056)
<223>

<400> 51

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atg gcg cac gtc cga ggc ttg cag ctg cct ggc tgc ctg gcc ctg gct        48
Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1               5                   10                  15

gcc ctg tgt agc ctt gtg cac agc cag cat gtg ttc ctg gct cct cag        96
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
                20                  25                  30

caa gca cgg tcg ctg ctc cag cgg gtc cgg cga acc gcc acc agt gag       144
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
        35                  40                  45

tac cag act ttc ttc aat ccg agg acc ttt ggc tcg gga gag gca gac       192
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
    50                  55                  60

tgt ggg ctg cga cct ctg ttc gag aag aag tcg ctg gag gac aaa acc       240
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65                  70                  75                  80

gaa aga gag ctc ctg gaa tcc tac atc gac ggg cgc att gtg gag ggc       288
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
                85                  90                  95

tcg gat gca gag atc ggc atg tca cct tgg cag gtg atg ctt ttc cgg       336
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
                100                 105                 110

aag agt ccc cag gag ctg ctg tgt ggg gcc agc ctc atc agt gac cgc       384
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
            115                 120                 125

tgg gtc ctc acc gcc gcc gcc tgc ctc ctg tac ccg ccc tgg gac aag       432
Trp Val Leu Thr Ala Ala Ala Cys Leu Leu Tyr Pro Pro Trp Asp Lys
    130                 135                 140

aac ttc acc gag aat gac ctt ctg gtg cgc att ggc gcc cac tcc cgc       480
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Ala His Ser Arg
145                 150                 155                 160

aca agg tac gag cga aac att gaa gcc ata tcc atg ttg gaa aag atc       528
Thr Arg Tyr Glu Arg Asn Ile Glu Ala Ile Ser Met Leu Glu Lys Ile
```

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                 165               170               175
tac atc cac ccc agg tac aac tgg cgg gag aac ctg gac cgg gac att      576
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
             180               185               190
gcc ctg atg aag ctg aag aag cct gtt gcc ttc agt gac tac att cac      624
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
             195               200               205
cct gtg tgt ctg ccc gac agg gag acg gca gcc agc ttg ctc cag gct      672
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
         210               215               220
gga tac aag ggg cgg gtg aca ggc tgg ggc aac ctg aag gag acg tgg      720
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225               230               235               240
aca gcc aac gtt ggt aag ggg cag ccc agt gtc ctg cag gtg gtg aac      768
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
                 245               250               255
ctg ccc att gtg gag cgg ccg gtc tgc aag gac tcc acc cgg atc cgc      816
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
             260               265               270
atc act gac aac atg ttc tgt gct ggt tac aag cct gat gaa ggg aaa      864
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
             275               280               285
cga ggg gat gcc tgt gaa ggg gac gcc ggg gga ccc ttt gtc atg aag      912
Arg Gly Asp Ala Cys Glu Gly Asp Ala Gly Gly Pro Phe Val Met Lys
         290               295               300
agc ccc ttt aac aac cgc tgg tat caa atg ggc atc gtc tca tgg ggt      960
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305               310               315               320
gaa ggc tgt gac cgg gat ggg aaa tat ggc ttc tac aca cat gtg ttc     1008
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
                 325               330               335
cgc ctg aag aag tgg ata cag aag gtc att gat cag ttt gga gag tag     1056
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
             340               345               350


<210>  52
<211>  351
<212>  PRT
<213>  Homo sapiens


<400>  52
Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1               5               10               15
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
             20               25               30
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
         35               40               45
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
     50               55               60
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Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65                  70                  75                  80
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
                85                  90                  95
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
                100                 105                 110
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
            115                 120                 125
Trp Val Leu Thr Ala Ala Ala Cys Leu Leu Tyr Pro Pro Trp Asp Lys
        130                 135                 140
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Ala His Ser Arg
145                 150                 155                 160
Thr Arg Tyr Glu Arg Asn Ile Glu Ala Ile Ser Met Leu Glu Lys Ile
                165                 170                 175
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
            180                 185                 190
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
            195                 200                 205
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
    210                 215                 220
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225                 230                 235                 240
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
                245                 250                 255
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
            260                 265                 270
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
            275                 280                 285
Arg Gly Asp Ala Cys Glu Gly Asp Ala Gly Gly Pro Phe Val Met Lys
    290                 295                 300
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305                 310                 315                 320
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
                325                 330                 335
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
            340                 345                 350
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<210> 53
<211> 1056
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)..(1056)
<223>

<400> 53
atg gcg cac gtc cga ggc ttg cag ctg cct ggc tgc ctg gcc ctg gct   48

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        Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
        1               5                   10                  15
gcc ctg tgt agc ctt gtg cac agc cag cat gtg ttc ctg gct cct cag    96
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
            20                  25                  30
caa gca cgg tcg ctg ctc cag cgg gtc cgg cga acc gcc acc agt gag    144
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
        35                  40                  45
tac cag act ttc ttc aat ccg agg acc ttt ggc tcg gga gag gca gac    192
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
        50                  55                  60
tgt ggg ctg cga cct ctg ttc gag aag aag tcg ctg gag gac aaa acc    240
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65                  70                  75                  80
gaa aga gag ctc ctg gaa tcc tac atc gac ggg cgc att gtg gag ggc    288
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
                85                  90                  95
tcg gat gca gag atc ggc atg tca cct tgg cag gtg atg ctt ttc cgg    336
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
            100                 105                 110
aag agt ccc cag gag ctg ctg tgt ggg gcc agc ctc atc agt gac cgc    384
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
            115                 120                 125
tgg gtc ctc acc gcc gcc gcc tgc ctc ctg tac ccg ccc tgg gac aag    432
Trp Val Leu Thr Ala Ala Ala Cys Leu Leu Tyr Pro Pro Trp Asp Lys
            130                 135                 140
aac ttc acc gag aat gac ctt ctg gtg cgc att ggc gcc cac tcc cgc    480
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Ala His Ser Arg
145                 150                 155                 160
aca agg tac gag cga aac att gaa aag ata tcc atg ttg gaa aag atc    528
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
                165                 170                 175
tac atc cac ccc agg tac aac tgg cgg gag aac ctg gac cgg gac att    576
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
            180                 185                 190
gcc ctg atg aag ctg aag aag cct gtt gcc ttc agt gac tac att cac    624
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
            195                 200                 205
cct gtg tgt ctg ccc gac agg gag acg gca gcc agc ttg ctc cag gct    672
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
            210                 215                 220
gga tac aag ggg cgg gtg aca ggc tgg ggc aac ctg aag gag acg tgg    720
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225                 230                 235                 240
aca gcc aac gtt ggt aag ggg cag ccc agt gtc ctg cag gtg gtg aac    768
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
            245                 250                 255
ctg ccc att gtg gag cgg ccg gtc tgc aag gac tcc acc cgg atc cgc    816
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
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                260                   265                   270
atc act gac aac atg ttc tgt gct ggt tac aag cct gat gaa ggg aaa        864
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
            275                   280                   285
cga ggg gat gcc tgt gaa ggg gac gcc ggg gga ccc ttt gtc atg aag        912
Arg Gly Asp Ala Cys Glu Gly Asp Ala Gly Gly Pro Phe Val Met Lys
        290                   295                   300
agc ccc ttt aac aac cgc tgg tat caa atg ggc atc gtc tca tgg ggt        960
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305                   310                   315                   320
gaa ggc tgt gac cgg gat ggg aaa tat ggc ttc tac aca cat gtg ttc       1008
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
                325                   330                   335
gcc ctg aag aag tgg ata cag aag gtc att gat cag ttt gga gag tag       1056
Ala Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
                340                   345                   350
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<210> 54
<211> 351
<212> PRT
<213> Homo sapiens

<400> 54

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Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1               5                   10                  15
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
            20                  25                  30
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
        35                  40                  45
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
    50                  55                  60
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65                  70                  75                  80
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
            85                  90                  95
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
            100                 105                 110
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
        115                 120                 125
Trp Val Leu Thr Ala Ala Ala Cys Leu Leu Tyr Pro Pro Trp Asp Lys
    130                 135                 140
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Ala His Ser Arg
145                 150                 155                 160
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
                165                 170                 175
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
            180                 185                 190
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
        195                 200                 205
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Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
   210   215   220

Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225   230   235   240

Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
         245   250   255

Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
         260   265   270

Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
         275   280   285

Arg Gly Asp Ala Cys Glu Gly Asp Ala Gly Gly Pro Phe Val Met Lys
         290   295   300

Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305   310   315   320

Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
         325   330   335

Ala Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
         340   345   350

<210> 55
<211> 1056
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)..(1056)
<223>

<400> 55
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Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1   5   10   15

gcc ctg tgt agc ctt gtg cac agc cag cat gtg ttc ctg gct cct cag   96
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
        20   25   30

caa gca cgg tcg ctg ctc cag cgg gtc cgg cga acc gcc acc agt gag   144
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
        35   40   45

tac cag act ttc ttc aat ccg agg acc ttt ggc tcg gga gag gca gac   192
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
     50   55   60

tgt ggg ctg cga cct ctg ttc gag aag aag tcg ctg gag gac aaa acc   240
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65   70   75   80

gaa aga gag ctc ctg gaa tcc tac atc gac ggg cgc att gtg gag ggc   288
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
        85   90   95

tcg gat gca gag atc ggc atg tca cct tgg cag gtg atg ctt ttc cgg   336
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
    100   105   110

aag agt ccc cag gag ctg ctg tgt ggg gcc agc ctc atc agt gac cgc   384
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
    115   120   125

tgg gtc ctc acc gcc gcc gcc tgc ctc ctg tac ccg ccc tgg gac aag   432
Trp Val Leu Thr Ala Ala Ala Cys Leu Leu Tyr Pro Pro Trp Asp Lys
    130   135   140

aac ttc acc gag aat gac ctt ctg gtg cgc att ggc gcc cac tcc cgc   480
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Ala His Ser Arg
145   150   155   160

aca agg tac gag cga aac att gaa aag ata tcc atg ttg gaa aag atc   528
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
              165   170   175

tac atc cac ccc agg tac aac tgg cgg gag aac ctg gac cgg gac att   576
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
              180   185   190

gcc ctg atg aag ctg aag aag cct gtt gcc ttc agt gac tac att cac   624
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
        195   200   205

cct gtg tgt ctg ccc gac agg gag acg gca gcc agc ttg ctc cag gct   672
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
        210   215   220

gga tac aag ggg cgg gtg aca ggc tgg ggc aac ctg aag gag acg tgg   720
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225   230   235   240

aca gcc aac gtt ggt aag ggg cag ccc agt gtc ctg cag gtg gtg aac   768
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
              245   250   255

ctg ccc att gtg gag cgg ccg gtc tgc aag gac tcc acc cgg atc cgc   816
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
              260   265   270

atc act gac aac atg ttc tgt gct ggt tac aag cct gat gaa ggg aaa   864
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
        275   280   285

cga ggg gat gcc tgt gaa ggg gac gcc ggg gga ccc ttt gtc atg aag   912
Arg Gly Asp Ala Cys Glu Gly Asp Ala Gly Gly Pro Phe Val Met Lys
        290   295   300

agc ccc ttt aac aac cgc tgg tat caa atg ggc atc gtc tca tgg ggt   960
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305   310   315   320

gaa ggc tgt gac cgg gat ggg aaa tat ggc ttc tac aca cat gtg ttc   1008
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
              325   330   335

cgc ctg aag gcc tgg ata cag aag gtc att gat cag ttt gga gag tag   1056
Arg Leu Lys Ala Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
        340   345   350

<210> 56
<211> 351
<212> PRT
<213> Homo sapiens

<400> 56

Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1   5   10   15

Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
                20   25   30

Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
        35   40   45

Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
    50   55   60

Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65   70   75   80

Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
                85   90   95

Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
                100   105   110

Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
        115   120   125

Trp Val Leu Thr Ala Ala Ala Cys Leu Leu Tyr Pro Pro Trp Asp Lys
    130   135   140

Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Ala His Ser Arg
145   150   155   160

Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
                165   170   175

Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
                180   185   190

Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
        195   200   205

Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
    210   215   220

Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225   230   235   240

Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
                245   250   255

Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
                260   265   270

Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
        275   280   285

Arg Gly Asp Ala Cys Glu Gly Asp Ala Gly Gly Pro Phe Val Met Lys
    290   295   300

Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305   310   315   320

Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
                325   330   335

Arg Leu Lys Ala Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu

340   345   350

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<210>  57
<211>  1056
<212>  DNA
<213>  Homo sapiens

<220>
<221>  CDS
<222>  (1)..(1056)
<223>

<400>  57
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Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1               5                   10                  15
gcc ctg tgt agc ctt gtg cac agc cag cat gtg ttc ctg gct cct cag      96
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
                20                  25                  30
caa gca cgg tcg ctg ctc cag cgg gtc cgg cga acc gcc acc agt gag     144
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
            35                  40                  45
tac cag act ttc ttc aat ccg agg acc ttt ggc tcg gga gag gca gac     192
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
        50                  55                  60
tgt ggg ctg cga cct ctg ttc gag aag aag tcg ctg gag gac aaa acc     240
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65                  70                  75                  80
gaa aga gag ctc ctg gaa tcc tac atc gac ggg cgc att gtg gag ggc     288
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
                85                  90                  95
tcg gat gca gag atc ggc atg tca cct tgg cag gtg atg ctt gcc cgg     336
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Ala Arg
                100                 105                 110
aag agt ccc cag gag ctg ctg tgt ggg gcc agc ctc atc agt gac cgc     384
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
            115                 120                 125
tgg gtc ctc acc gcc gcc gcc tgc ctc ctg tac ccg ccc tgg gac aag     432
Trp Val Leu Thr Ala Ala Ala Cys Leu Leu Tyr Pro Pro Trp Asp Lys
        130                 135                 140
aac ttc acc gag aat gac ctt ctg gtg cgc att ggc aag cac tcc cgc     480
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
145                 150                 155                 160
aca agg tac gag cga aac att gaa aag ata tcc atg ttg gaa aag atc     528
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
                165                 170                 175
tac atc cac ccc agg tac aac tgg cgg gag aac ctg gac cgg gac att     576
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
                180                 185                 190
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gcc ctg atg aag ctg aag aag cct gtt gcc ttc agt gac tac att cac      624
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
        195                 200                 205

cct gtg tgt ctg ccc gac agg gag acg gca gcc agc ttg ctc cag gct      672
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
        210                 215                 220

gga tac aag ggg cgg gtg aca ggc tgg ggc aac ctg aag gag acg tgg      720
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225                 230                 235                 240

aca gcc aac gtt ggt aag ggg cag ccc agt gtc ctg cag gtg gtg aac      768
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
                245                 250                 255

ctg ccc att gtg gag cgg ccg gtc tgc aag gac tcc acc cgg atc cgc      816
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
                260                 265                 270

atc act gac aac atg ttc tgt gct ggt tac aag cct gat gaa ggg aaa      864
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
        275                 280                 285

cga ggg gat gcc tgt gaa ggg gac gcc ggg gga ccc ttt gtc atg aag      912
Arg Gly Asp Ala Cys Glu Gly Asp Ala Gly Gly Pro Phe Val Met Lys
        290                 295                 300

agc ccc ttt aac aac cgc tgg tat caa atg ggc atc gtc tca tgg ggt      960
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305                 310                 315                 320

gaa ggc tgt gac cgg gat ggg aaa tat ggc ttc tac aca cat gtg ttc     1008
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
                325                 330                 335

cgc ctg aag aag tgg ata cag aag gtc att gat cag ttt gga gag tag     1056
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
        340                 345                 350
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<210>   58
<211>   351
<212>   PRT
<213>   Homo sapiens

<400>   58
Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1               5                   10                  15
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
                20                  25                  30
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
        35                  40                  45
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
        50                  55                  60
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65                  70                  75                  80
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
                85                  90                  95
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Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Ala Arg
             100   105   110

Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
             115   120   125

Trp Val Leu Thr Ala Ala Ala Cys Leu Leu Tyr Pro Pro Trp Asp Lys
             130   135   140

Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
145   150   155   160

Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
             165   170   175

Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
             180   185   190

Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
             195   200   205

Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
             210   215   220

Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225   230   235   240

Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
             245   250   255

Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
             260   265   270

Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
             275   280   285

Arg Gly Asp Ala Cys Glu Gly Asp Ala Gly Gly Pro Phe Val Met Lys
             290   295   300

Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305   310   315   320

Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
             325   330   335

Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
             340   345   350